

# Teachers' beliefs about intelligence

*An investigation into the beliefs of public primary school teachers in Australia and Norway*

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## Abstract

*The present project is a comparative study of the beliefs about intelligence of public primary school teachers in Norway and Australia. The main aims were to investigate the nature of these beliefs, the extent to which they differed according to cultural context, and what the main influences on the teachers' beliefs about intelligence were.*

*A mixed methods research design was employed. 27 teachers (21 in Norway and 6 in Australia) replied to an online survey, while 8 interviews were carried out in each country. While the teachers' beliefs about intelligence were quite similar across the two countries, results indicated a cultural influence on the manifestation of these beliefs, where responses to belief items varied to different extents in Norway and Australia, depending on the nature of the survey item or the interview question. Furthermore, it seemed teachers' beliefs were closely related to their individual, personal experiences; especially parental influence, childhood schooling experiences, and later work experiences.*

*These results were discussed in relation to research concerning the nature of beliefs as well as educational context, in terms of the specific manifestation of egalitarianism in each country. Severe limitations to the online survey in terms of sample size meant the results can not be generalized beyond the present sample and contexts, and must rather be interpreted in terms of an exploration of the relationships between beliefs about intelligence and the influences by background experiences as well as present contextual factors. Suggestions for future research investigations are made.*

## **Preface**

My interest in education in an academic sense was awoken by chance during the third semester of my undergraduate studies in Sydney, Australia. Prior to enrolling as a student, I had worked as a ski instructor for many years, and was very engaged in discerning which instructional techniques were most effective. Still, when I went ‘back to school’, trying to figure out what to make of my life, and more immediately, which majors to choose, it did not occur to me to consider educational research. However, in my third semester, about to fail Japanese, I had to change my second major. I ended up enrolling in a course in educational psychology, which seemed to provide the background for all the personal theories I had constructed during my years of instructing. Two and a half years later I graduated with an honours degree in education, and a decided interest in further pursuit of educational research.

My present interest in the role of beliefs stems from hearing about the classic study ‘Pygmalion in the classroom’ during one of my educational psychology classes. I became concerned with the potential impact teachers’ beliefs might have on students, both in terms of the students’ own beliefs and their performance. My background within educational psychology had convinced me of the potential for learning and development given the right context and effective teaching methods; I simply deemed it more interesting and relevant to consider an individual’s potential, as well as the methods to reach this potential, rather than possible innate differences in ability.

When I enrolled in the present master program, I quickly decided to investigate the role of teachers’ beliefs in the two countries. While gifted education was a research genre in its own right within my faculty in Australia, it seemed to be a controversial topic in Norwegian society. Comparing my impressions from the educational system in Australia with what I was seeing and experiencing in Norway, I felt the differential treatment of giftedness and high ability in the two systems might reflect deeper cultural differences.

As such, my present investigation has sprung from a background and interest within educational psychology, a first-hand knowledge of the educational and societal contexts of Norway and Australia, and, ultimately, the increasingly complex nature of my university course on Japanese language.

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# 1. Introduction

## 1.1. *Background / Rationale*

Beliefs have been argued to be one of the strongest predictors of human behavior (Bandura, 1986; Pajares, 1992). Often formed on the basis of early experiences, beliefs might be illogical and inconsistent, and nevertheless relatively resistant to change. Set aside from knowledge structures on the basis of their affective qualities, beliefs might function as guiding images, influencing behavior at the sub-conscious level (Pajares, 1992).

In an educational context, teachers' beliefs are important as precursors of teachers' strategies and behaviors in the classroom (Nespor, 1987; Pajares, 1992). In relation to incremental versus entity beliefs about intelligence (beliefs regarding the modifiability of intelligence), researchers argue they might influence individual's strategy use and learning behavior (Dweck, 2008). Several research studies have demonstrated the potential impact of teachers' beliefs and expectations on students' beliefs and performance (Midgley, Feldlaufer, & Eccles, 1989; Rosenthal & Jacobsen, 1965; Rosnow & Rosenthal, 1997), and research on teachers' beliefs have led to intervention programs such as reflective teaching (Hoy, Hoy, & Davis, 2009).

Due to a shared "western" culture, Norway and Australia are more similar than might be expected from the long physical distance separating them. Both modern countries committed to egalitarian ideals (Braathe & Ongstad, 2001; Kapferer, 2003), their public school systems share several similarities (Barcan, 1980; Høigård, Ruge, & Hansen, 1971). At the same time, some obvious differences are apparent in terms of how their educational systems at large cater for and deal with difference in student ability (Eurydice, 2006; Mathiesen, Holte, & Mehli, 2006; SenateCommitteeReports, 2004). Distinct social and cultural histories of the countries have given way to the specific educational settings of today, as well as to the social climates within which teachers and students alike live, learn and work.

It is deemed likely that teachers' beliefs are influenced by their cultural contexts. On the other hand, it is uncertain to which degree and in which manner such influences might manifest themselves. Accordingly, it was of interest to investigate whether the differences between the

Norwegian and Australian educational systems might manifest themselves in terms of teachers' differential beliefs about intelligence.

Focusing on incremental versus entity beliefs about intelligence, the present study wishes to investigate the nature of teachers' beliefs in Norway and Australia, the extent to which these beliefs differ according to cultural context, as well as which factors might influence teachers' beliefs.

## **1.2. Research themes**

Maintaining that teachers' beliefs impact on students' development and learning processes in several ways, a comparative approach was taken to investigate the role of cultural context on teachers' beliefs in the two countries. While the impact of background and experiences on the formation of beliefs is commonly accepted, the relative impact of these experiences is less certain. It was of interest to explore to which extent teachers' beliefs about intelligence were influenced by culture, educational and professional backgrounds, family and friends, and other factors.

In light of this, the study was guided by the following general research themes:

- A. What is the nature of primary school teachers' beliefs about intelligence in Australia and Norway?
- B. Is there a relationship between holding incremental versus entity beliefs about intelligence, and teachers' cultural backgrounds?
- C. What are the main influences on teachers' beliefs?

With the intention of investigating these themes through an online survey and interviews, two hypotheses were initially formulated (in relation to the survey):

*H1: There is a relationship between cultural background and beliefs about intelligence, where Norwegian primary school teachers have more incremental views on intelligence than their Australian counterparts.*

*H2: There is a relationship between students' performance, as perceived by their teachers, and teachers' beliefs about intelligence, where teachers that report working with above*

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*average students hold more incremental views of intelligence than teachers that report working with below average students.*

Due to an unexpectedly low response rate to the online survey, it was found that the data did not lend itself to hypothesis-testing. In light of this, and in consideration of the research implications from the literature reviewed, the general research themes were reformulated as research questions specifically related to the online survey and the interviews.

### **1.3. Research questions**

#### **1.3.1. Online survey**

Given that hypothesis-testing was deemed inappropriate, a careful exploration of the data from the surveys was employed, in order to note major tendencies and exceptions. This data exploration was guided by the following research questions, related to the initially posted hypotheses:

- a) What are the beliefs about the modifiability of intelligence held by primary school teachers in Australia and Norway?
- b) Is there a relationship between holding incremental versus entity beliefs about intelligence, and teachers' cultural backgrounds?
- c) Is there a relationship between school context, in terms of students' performance level, and teachers' incremental versus entity beliefs about intelligence?

#### **1.3.2. Interviews**

No hypotheses were posted for the interviews, rather, interview guides were designed around the following research questions:

- a) What is the nature of primary school teachers' beliefs about intelligence in Australia and Norway?
- b) Is there a relationship between incremental versus entity beliefs about intelligence, and teachers' cultural backgrounds?
- c) Are the teachers' explicit responses regarding beliefs about intelligence consistent with their other statements throughout the interviews?

- d) What are the main influences on teachers' beliefs?

### **1.4. Methodology**

A mixed methods investigation into the beliefs of public primary school teachers was carried out in Norway and Australia. The survey utilized instruments measuring beliefs about intelligence developed by Bråten and Olaussen (1998) and Dweck (2008). In addition to the survey, a total of 16 interviews, 8 in Australia and 8 in Norway, were conducted. The interviews were designed to provide contextual and relational data concerning the nature of teachers' beliefs about intelligence in Australia and Norway, as well as the relative influence on these beliefs by experiences and contextual factors.

While the online survey was initially designed so as to test certain hypotheses, the interviews were seen as opportunities to explore the relationship between teachers' beliefs and their backgrounds, and provide deeper, contextual, understanding. It was also hoped that the project might spur participating teachers on to reflect around their own beliefs, and subsequently develop a deeper understanding of these. This in particular in the case of teachers participating in an interview.

The low response rate to the survey had implications for the study at large, and for the role of the interviews in relation to the surveys. Rather than obtaining a significant amount of quantitative data from the surveys, to which the qualitative interview data could serve as in-depth examples, the functions of the two data samples were practically reversed, where the survey data took on a more peripheral role. Nevertheless, the online survey was initially designed and organized according to the aim of hypothesis testing, which had implications on the survey design; both in relation to the precision of the items included, as well as the limited opportunities provided to give detailed responses.

Given the prominent role the interview data gained in the study, the number of interviews initially planned were increased. As such, it was hoped they would serve as a rich data base, to which the survey data could serve an illustrative function. In this manner could be noted general trends evident in the interviews as well as the surveys, as well as potential differences and divergences between the two data samples. Given the possibility of looking at the

variation of responses in relation to the data collection methods applied, one aim was to explore emerging links and relationships in the most fruitful manner.

Accordingly, the research questions stated were seen as useful points of reference rather than frames of limitation. The interviews were designed to provide ample opportunity for the teachers to explore their own beliefs about intelligence, as well as talk about specific experiences or examples relating to the research questions. In order to fully take advantage of the rich data from the interviews, an exploratory approach to the analysis of the interview data was taken. This allowed for the consideration of emerging tendencies, which could thus potentially influence both the analysis of the online surveys, as well as the direction and focus of the research project at large.

### **1.5.     *Structure of thesis***

Following this introduction, two chapters will consider the theoretical background of the present project. In chapter two, research concerning beliefs will be considered. First, research findings regarding the nature and organization of beliefs will be discussed, followed by a brief investigation into some relevant types of educational beliefs considered by researchers. Finally, teachers' beliefs will be considered specifically, including research concerning the impact of, as well as efforts to change, teachers' beliefs.

The educational context of Australia and Norway will be investigated in chapter three. A thorough investigation into Norwegian and Australian culture would require a thesis in its own right, and is a task which cannot be given due consideration in the present project. Rather, the educational context in the two countries is investigated in relation to certain dominant *cultural themes* relevant to the present discussion. After a brief investigation into the histories of the educational systems in the two countries, egalitarianism and its' specific manifestation in Norway and Australia is considered.

Following the background chapters, methodological considerations will be discussed in chapter four. Here, issues regarding selection of participants, design of instrument, research procedure and data analysis will be considered in relation to the online survey and the interviews. Finally, issues regarding reliability, validity and generalizability will be discussed in relation to perceived methodological weaknesses of the present study.

Results will be presented in chapter five. Main tendencies emerging from the online survey and the interviews will be considered separately. Findings that were not related to the initial research questions, but nevertheless emerged as interesting trends, will also be presented, depending on their perceived relevance.

The results are discussed in chapter six. First, main findings from the online survey will be discussed, followed by a discussion of the main interview findings. The above-mentioned unanticipated results are included in these discussions. After these initial discussions, a synthesis is made, where results from the survey and the interviews are considered together and in light of one-another. Finally, some concluding remarks will be made. These will briefly summarize the main findings from the present research, note the limitations to these findings, and point to potential avenues for future research.

*It should be noted that the present version of this thesis has received minor alterations, due to issues related to participant confidentiality. This is in line with the University of Oslo policy and requirements regarding clausulation. Specifically, information which might serve to identify individual teachers or schools has been altered or excluded. Missing information will be indicated specifically in the sections where the alterations are deemed to be significant, or relevant to the understanding of the passage.*

## 2. Beliefs

Several summaries regarding the research on teachers' beliefs have proved helpful in developing the following theoretical framework, in particular the ones by Pajares (1992), Woolfolk Hoy, Davis and Pape (2006), and Richardson (1996). While original research has been sought out where appropriate, these summaries have been practical, given the limitations of the current study.

### 2.1. *The nature of beliefs*

Several prominent researchers have argued that beliefs are one of the strongest predictors of human behavior (Bandura, 1986; Nisbett & Ross, 1980; Pajares, 1992; Rokeach, 1968). The study of beliefs is of special interest in the case of teachers, in terms of the influence teachers' beliefs might have on their behaviors in the classroom (Bandura, 1986; Fenstermacher, 1979, in Pajares, 1992; Lortie, 1975; Munby, 1982; Nespor, 1987; Rokeach, 1968).

Researchers argue that teachers' beliefs influence (amongst other things) how teachers perceive of their students, the learning material, the learning process and their own role as an educator (Butler, 2000; Hoy, Davis, & Pape, 2006; Kagan, 1992; Nespor, 1987; Pajares, 1992). Differing beliefs might lead to differences in terms of expectations and interpretations of student achievement (Butler, 2000; Rosenthal & Jacobsen, 1965), different types of student – teacher interactions, for instance student feedback (Butler, 2000; Hoy, Davis, & Pape, 2006; Jordan, Glenn, & McGhie-Richmond, 2010; Rosnow & Rosenthal, 1997), impact the degree to which teachers adopt new classroom practices (Jordan, Glenn, & McGhie-Richmond, 2010; Sinatra & Kardash, 2004), and also affect teachers' efficacy and motivation on the job (Bandura, 1986; Hoy, Davis, & Pape, 2006; Pajares, 1992). The beliefs teachers hold about students and student learning might also in turn influence student beliefs, behavior and performance (Bruning, Schraw, & Ronning, 1999; Midgley, Feldlaufer, & Eccles, 1989; Rosenthal & Jacobsen, 1965; Stipek, 2002), though the determinants of student performance are complex and plentiful, and no conclusive assumptions can be made in this regard. Nevertheless, these findings illustrate the importance of gaining insight into the nature of teachers' beliefs as well as how these beliefs might be influenced in ways promoting effective teacher behavior and subsequent student achievement.

The research conducted within the field of cognition in general is vast and informative, and researchers have offered a number of useful theories and models to describe the systems and processes concerning beliefs in particular. This chapter will attempt to provide an overview of some of these theories, to the extent that they are useful in the present context. The existing literature on beliefs will be investigated, especially literature concerning the influence of beliefs on teachers' thoughts and behaviors. First, a definition of beliefs is sought (chapter 2.1.1) and research into the formation and nature of beliefs is discussed (chapters 2.1.2 and 2.1.3). Some properties of beliefs, such as the primacy effect, will be looked into (chapter 2.1.4). Several types of educational beliefs will be discussed, according to their relevance to the present context (chapter 2.2). Finally, the nature and impact of teachers' beliefs are discussed specifically, as well as their relationship to the process of teacher socialization (chapter 2.3).

### **2.1.1. The definition of beliefs**

While few researchers contest that beliefs are strong influences on human thinking and behavior, investigating teachers' beliefs might seem daunting, in part due to the lack of a clear and simple definition (Pajares, 1992). There is an array of different conceptualizations concerning the nature of beliefs, and a number of different words and expressions related to beliefs might be encountered in the research literature. Attitudes, perceptions, predispositions and values are some examples of popular terminology (Pajares, 1992). According to Pajares (1992), researchers in many cases refer to the same, or very similar, psychological constructs using different terminology, same meaning, different "jargon", which might be bewildering. While researchers understandably wish to be concise and specific in their research, the array of varying terms applied in the research literature, and the subsequent lack of a common conception of beliefs, might ultimately become a hindrance to clarity.

Synthesizing findings from many researchers, Pajares (1992) held that while different terms might be applied, researchers generally agree that beliefs are internal, mental constructs individuals hold regarding their perception of reality, which are based less on objective facts and more on personal experiences. While objectively questionable, they are held as true by the individual, to the extent that they might guide his/her behavior, or dispositions to action (Pajares, 1992; Rokeach, 1968). Richardson (1996), in her synthesis of research on beliefs, used a similar conception of the term.



Beliefs may be explicit or implicit, implicit meaning they are held without conscious awareness (Bruning, Schraw, & Ronning, 1999). Rhodewalt (1994) argued that implicit beliefs serve as very strong influences on learning behaviors, and frequently permeate learning strategies without conscious awareness. Beliefs about intelligence and learning which have developed over time are often implicit in kind (Bruning, Schraw, & Ronning, 1999).

The assumption of truth proves challenging when attempting to make the perhaps most important distinction between constructs encountered in the research literature; that between beliefs and knowledge. The relationship is not clear-cut; while Rokeach (1968) conceptualized knowledge as a component of beliefs, Nisbett and Ross (1980) argued beliefs are a type of knowledge. Lewis (1990, in Pajares, 1992), somewhat philosophically, held that all knowledge ultimately derives from beliefs, given the uncertainty of human existence. Individuals must trust, or believe, in the accuracy of their own senses, before they can make inferences about the information they perceive.

Perhaps more pragmatically, Nespor (1987) presented several features of beliefs that set them aside from knowledge structures. Investigating the nature of teachers' beliefs, Nespor found that they were often linked to crucial experiences in the teachers' pasts, and thus rooted in episodic memories. Furthermore, they were often heavily invested in with feelings and values. She argued that beliefs are set aside from knowledge through their personal, affective and emotional aspects, and through not being dependent on neither scientific fact nor lived experiences (i.e. beliefs might represent 'alternative realities'). Nespor further argued that due to the above mentioned characteristics, belief systems are not dependent on consensus in terms of consistency with internal or external factual information, such as peer agreement. They are also unbounded, which refers to the fact that beliefs might frequently be applied to situations where they are seemingly inappropriate, once again due to their affective and seeming "illogical" nature (Nespor, 1987). The findings by Nespor serve to distinguish beliefs from the more neutrally perceived knowledge.

Schraw (2006) synthesized research concerning human cognitive processes, including the evolving conceptualizations of knowledge. A traditional view of knowledge as something objective, true and static would facilitate a distinction between knowledge and beliefs. With today's divergence from this positivist conception of knowledge, this distinction is

challenged, however. Postpositivist and postmodern conceptions of knowledge both hold that knowledge is changing, not static, and constructed, not discovered (Schraw, 2006). Under both these conceptions, knowledge is perceived to be relatively subjective, and not always free of affective components (Pajares, 1992; Schraw, 2006).

Under such conditions, it becomes increasingly difficult to differentiate between the meaning of statements such as “I know...” and “I believe...”. Taking what resembles a postmodern view to knowledge, Woolfolk-Hoy and her colleagues argued that knowledge and beliefs are overlapping constructs (Woolfolk-Hoy, Davis, & Pape, 2006). The key point might, in the end, be one of falsifiability, related to Nespor’s findings regarding the (lack of) need for consensus. To most researchers and people in general, the concept knowledge bears connotations of something to which there is a certain shared consensus, something which might be tested when articulated, and discarded with sufficient convincing evidence. Beliefs on the other hand, with their more affective qualities, are not as easily challenged or falsified (Nespor, 1987; Pajares, 1992).

### **2.1.2. Belief formation**

According to Pajares’ synthesis (1992), most theorists agree that beliefs are formed through the experiences of enculturation and social construction. Enculturation refers to a type of incidental learning, where individuals assimilate cultural elements they experience in their specific life worlds. Social construction includes all types of directed or purposeful learning, where individuals are encouraged to incorporate ideas and opinions of others. Both processes might lead to the formation of new beliefs (Pajares, 1992). Richardson (1996), along the same lines, argued that knowledge and beliefs are formed through three types of experiences; personal influences, schooling and formal knowledge. Schraw (2006) reported research claiming that people from similar cultures shared cognitive constructs, which guided their perceptions and eased communication, pointing to the influence of shared cultural experiences on the formation of beliefs. Simplifying, it might be argued that the processes of socialization and education work as major influences on the formation of beliefs.

Nisbett and Ross (1980) argued that humans construct ongoing theories about themselves and their social and natural surroundings ever from childhood. Early encountered information and experiences regarding their surroundings form the basis from which beliefs are formed. These

early beliefs might become linked to individuals' sense of identity and self-concept, and influence how later information is interpreted, including the formation of subsequent beliefs (Nisbett & Ross, 1980). This is termed the primacy effect (Nisbett & Ross, 1980). Nespor (1987) also found that beliefs frequently are linked to early, critical events, which influence how later experiences are perceived. In terms of teachers' beliefs, she found that some particularly crucial early experiences, for instance from an influential teacher during primary school, formed rich "episodic memories", which later influenced the teachers' own teaching practices in terms of "guiding images". Richardson (1996) reviewed research which demonstrated similar results, that beliefs formed on the basis of personal experiences are encoded as images or metaphors, which might subsequently influence teachers' views on teaching.

One way to describe the process of belief formation is by using the Piagetian concepts of assimilation and accommodation (Piaget, 1954, reprint 2002). Piaget held that any new phenomena or information encountered is incorporated into existing cognitive structures through the processes of assimilation, where new information is consistent with and adds to existing structures; or accommodation, where new information is in conflict with existing structures, and conceptual change is required for the new information to be accepted. Given the affective qualities of beliefs, their origin in personal experiences, and the way they become increasingly linked to perceptions of identity, individuals tend to be reluctant to change their existing belief structures. Assimilation, which allows for maintenance of the status quo, is thus the most comfortable and preferred process, while accommodation is less comfortable and more taxing in terms of cognitive resources. According to this view, the formation of beliefs might tend to become self-perpetuating. Prior beliefs influence the perception of new information, which is usually assimilated into the existing belief structure, and subsequently serve to reinforce the earlier beliefs.

Nespor (1987) found that teachers' beliefs were not necessarily related to a reality the teachers had experienced, but could just as well be related to a reality they had *not* experienced. She termed this an alternative reality; it might well be utopian, and the relation to actual reality might be weak or even non-existent. One of the teachers in Nespor's study seemed to base such a belief on negative experiences during her own school years, and the desire to avoid similar situations. Nespor described how the teacher's belief led to inefficient

teacher behaviors in the classroom, justified through the pursuit of an unrealistic, utopian, goal.

The formation of beliefs is not simple or one-directional. Richardson (1996) reported research that emphasized a reciprocal and interactive relationship between beliefs and behaviors (actions). While the research synthesized by Richardson emphasized that prior beliefs might influence behavior, there was also evidence that actions and behaviors might work to influence, and some times change, beliefs. When interpreting behavior as a type of experience, which leads to new information, this stance seems well aligned with the research regarding belief formation discussed above; while prior beliefs might function as filters in the interpretation of new information, new information might also add to or change the existing cognitive base, or prior beliefs.

The matter of which “win out”, prior beliefs or new information, is likely related to the strength of the prior beliefs and the strength and presentation of the new information. This is related to belief perseverance, which is discussed in chapter 2.1.4. For now, suffice it to say research indicates that the formation of meaning (beliefs) is created through an interactive process between input (action, information) and existing structures (thoughts, knowledge, beliefs). The organization of these constructs will now be considered.

### **2.1.3. Belief systems**

Rokeach (1968) was one of the early theorists attempting to describe belief systems, and his definition still serves as theoretical underpinning for present researchers. Rokeach held that beliefs are organized in belief-systems, in a psychological, but not necessarily logical, form. Rokeach held that beliefs can be more or less central or peripheral, which is related to the amount and strength of associations with other beliefs in the system. The more central a belief, the more functional connections it has with other beliefs and perceptions; like the nucleus in an atom, central beliefs are thus vital to the maintenance of stability in the system. The strength of the beliefs vary accordingly, with central beliefs being more resistant to change. Early beliefs tend to be highly interconnected, and thus quite central, along with beliefs that are connected to self or identity, beliefs that are shared, as well as un-derived beliefs (beliefs which have been created through self experience).

People at times seem to display inconsistent beliefs, or inconsistencies between their beliefs and their actions. According to Green (1971, in Richardson, 1996) beliefs are organized in clusters, and there may be little “cross-fertilization”; or, in the words of Rokeach, functional connections, between some of these clusters. Thus, individuals might comfortably hold incompatible beliefs concurrently, so long as these beliefs are not directly examined. In this manner, individuals may also hold differing implicit and explicit beliefs. When individuals become aware of conflicting, concurrent beliefs, this is termed cognitive dissonance. Schacter (2001) argued that individuals would go to great lengths to reduce dissonance, by distorting or changing the information to enable the peaceful, parallel continuation of their incompatible beliefs (such as reconciling two incompatible beliefs by assigning a temporal clause to one of them, of the type “in this particular case, however.”). This is related to belief perseverance, discussed in chapter 2.1.4. When conflicting beliefs prove irreconcilable, it is likely that the more central, and powerful, belief will win out (Nespor, 1987; Nisbett & Ross, 1980; Rokeach, 1968).

Rokeach’s model of belief systems bears much resemblance to how more recent cognitive researchers conceptualize the organization of memory. Both belief and memory structures are seen as complex structures of interconnected information regarding human experiences that influence the interpretation of subsequent information. Cognitive psychology also posits that not all memory is explicit. A large amount of information regarding an individual’s natural and social world is in implicit form, and works to influence daily decisions and behavior without conscious awareness (Bruning, Schraw, & Ronning, 1999, p. 69). A short discussion of the organization of memory might be useful.

According to cognitive psychologists (Bruning, Schraw, & Ronning, 1999; Schraw, 2006; Sweller, 1999), human cognitive architecture is organized in three memory processing units; sensory memory, working memory and long-term memory (LTM). While sensory memory is largely sub-conscious, and working memory equals consciousness, long-term memory contains all the information a human has encountered and stored throughout a lifetime (consciously aware of or not). This information is interconnected through associations; no information exists that is not linked to something else. Information in LTM is not merely statically stored, however, but actively influences human perception and the understanding and interpretation of new information (Bruning, Schraw, & Ronning, 1999; Ericsson & Kintsch, 1995; Schraw, 2006). Given the strong resemblances between the organization of

beliefs and the organization of cognitive constructs in long term memory, it seems conceptually logical to consider beliefs as one type of information processed in our memory systems, including LTM. Research regarding our human cognitive architecture at large might thus prove informative to further our understanding of the functions of beliefs.

Schema theory (Bruning, Schraw, & Ronning, 1999; Schraw, 2006; Sweller, 1999) holds that mental constructs in LTM, sometimes termed advance organizers or schemata, guide the perception and interpretation of new information. Once a schema is activated, it functions as a filter through which new information is interpreted, guiding attention determining which aspects of the new information will be attended to, "filling in" missing information that is consistent with the schema, and even distorting information given that is inconsistent with or challenges the schema (Bruning, Schraw, & Ronning, 1999; Schraw, 2006). This is consistent with research findings regarding the properties of beliefs, which indicate that beliefs may also function as schemata that guide the interpretation of new information (Bruning, Schraw, & Ronning, 1999; Nespors, 1987; Nisbett & Ross, 1980).

As previously discussed, research concerned with beliefs and memory structures alike has argued that human behavior might be influenced by subconscious, or implicit, structures. Research demonstrating functional dissociations between explicit and implicit memory tasks has led some neuroscientists to propose distinct memory structures for implicit and explicit memory (Bruning, Schraw, & Ronning, 1999, p. 69). These researchers argue explicit memory is related to a declarative memory system, while implicit memory is related to a procedural memory system. Other researchers yet again argue that explicit and implicit memory tasks require distinct cognitive operations, but are organized in the same system (Bruning, Schraw, & Ronning, 1999). While conclusions are yet to be made, either argument demonstrates the operational distinctions between explicit and implicit memory.

Models of human cognitive architecture have been continually improved upon, to best describe the peculiarities of human cognitive functions. The connectionist model (Bruning, Schraw, & Ronning, 1999; Schraw, 2006) differ from other models of cognition in that it suggests that memory is not "copied" and stored, per se. Rather, the connectionist model places emphasis on the strength among associations of memory structures. Memory, according to this model, is not hierarchical, but rather organized as "nonhierarchical distributed neural networks" (Schraw, 2006). This is much in line with Rokeach's early

conceptions of belief systems, focusing on the strength of connections between beliefs. It would explain why humans, who are slow and weak relative to computers when it comes to processing large amounts of serial information, are very adept and well suited for less well-defined, and potentially "messy" tasks encountered in everyday human life, such as holding a conversation (Bruning, Schraw, & Ronning, 1999).

In sum, most researchers argue that human beliefs are organized in a vast belief system, where the strength of the connections between beliefs determines their relative significance and strength. Beliefs are organized in belief clusters, and connections between beliefs are based on affective, not necessarily logical, components. Prominent beliefs function as filters through which new information is perceived, leading to a highly interconnected structure, where new beliefs are linked to existing ones. This is in line with research on human cognitive architecture in general, and the position that schema constructs in LTM function as schemata to help interpret and analyze new information, and to ensure continued balance in the system. The tendency for cognitive constructs to become self-perpetuating in such systems proposes a challenge in terms of belief change, which will now be discussed.

#### **2.1.4. Belief perseverance**

While the above discussion indicates that beliefs do not always provide the most accurate representations of reality nor function as the most appropriate guides to behavior, they nevertheless serve a useful function in human cognitive systems. Along with other schemata in LTM, beliefs help organize and make sense of new experiences and deal with the vast, and often repetitive, amount of information encountered throughout a lifetime. Beliefs enable humans to generalize through assimilation, and thus benefit from previous experiences of similar kind. Beliefs' resistance to easy change ensures continued equilibrium and stability in an environment full of potentially overwhelming and conflicting information. Finally, beliefs help maintain a sense of identity, and enable feelings of group belonging through shared perspectives (Bruning, Schraw, & Ronning, 1999; Schacter, 2001).

The strong link between beliefs and personal identity is argued to be one of the reasons some beliefs have a high resistance to change (Nespor, 1987; Pajares, 1992; Rokeach, 1968). Given their high interconnection with other beliefs in the structure, changing a central belief might involve readjusting beliefs and opinions of the self formed over a period of time. This would

bear ramifications on not just the individual belief but on a substantial portion of the belief system, and might endanger the sense of identity and self perception. Schommer (1990) found that prior beliefs would distort new information to the degree that they could remain self-consistent and avoid change. The tendency to resist change is termed belief perseverance, and is linked to the primacy effect. It seems the nature of beliefs together with peculiarities of the human cognitive architecture work to allow some beliefs to persevere past the point where they are useful and accurate.

Nisbett and Ross (1980) demonstrated that research participants stuck to initial judgments formed on the basis of false information even after thorough debriefing. The researchers argued that the emotional commitment people had to their initially formed beliefs, as well as memory bias, might be one explanation to this. Amongst others, Nespor (Nespor, 1987; Pajares, 1992) argued that some beliefs have strong imaginary qualities, termed guiding images, linked to their affective components. As such, they might be stored more as moods or general feelings rather than detailed constructs related to particular events or information. These qualities promote easy retrieval in LTM, and, together with the primacy effect, could help to explain why belief structures are applied as advance organizers even in situations where knowledge structures would seem more appropriate.

The perseverance of beliefs in the face of contradictory information might also be enabled through the reconstructive nature of human memory. Schacter (Schacter, 2001) discussed seven "sins" of human memory which might lead to erroneous recollections. According to Schacter, one of these sins was memory bias, which meant reconstructing memories consistent with our current beliefs (Schacter, 2001).

Cognitive psychologists also describe how our human cognitive architecture provides ample opportunity to strengthen and enforce memories consistent with beliefs, and suppress or alter information that challenges or is at odds with the same beliefs (Bruning, Schraw, & Ronning, 1999; Schraw, 2006). At the time of encoding, prior beliefs function as filters, interpreting the new information in ways aligned with existing views. This enables for the process of assimilation to take place, even when the factual information is at odds with what is already "known", and should, objectively, prompt conceptual change (accommodation). At the time of memory retrieval, when considering past events, properties of LTM again "help" to maintain status quo.



As previously discussed, research indicates that memory is not stored in perfect, unaltered condition, but rather as the strength of associations between memory structures. Cognitive researchers argue that LTM stores just certain elements of a given memory. This saves storage space, but also enables some "very agile mental somersaults" (Bruning, Schraw, & Ronning, 1999, p. p ). The missing information is provided by schemata in LTM and "filled in" at the point of retrieval. If a prior belief is activated as schema, the reconstructed memory might thus be consistent with our general views and opinions regarding the subject matter or event. In this way memory is potentially "distorted" twice; at the time of encoding (beliefs might guide perception and interpretation, influencing both what information is attended to and how it is stored) and the time of retrieval (beliefs might serve to "fill in the blanks" to provide a full memory consistent with dominant belief(s)).

It seems evident that human cognition is fallible, and that beliefs at times provide a less than accurate representation of reality or useful guide to behavior. The following sections will examine certain some types of educational beliefs that might influence teachers' classroom behaviors.

## **2.2. *Educational beliefs***

Several researchers have investigated the nature and impact of specific types of beliefs, perhaps in response to the kinds of concerns regarding a "messy" domain expressed by Pajares (1992). Research into specific belief types has led to increased understanding of the nature of these, and in some cases certain types of beliefs have been linked to certain types of behaviors.

Woolfolk Hoy, Davis and Pape (2006) reviewed a number of research studies conducted regarding teachers' various educational beliefs. Amongst these were beliefs regarding childhood, diversity, educational policy, assessment, school setting, and student characteristics, as well as teachers' beliefs regarding themselves; or teacher efficacy. Weiner's attribution theory (Anderman & Wolters, 2006; Schunk & Zimmerman, 2006; Stipek, 2002), goal theory (Anderman & Wolters, 2006; Stipek, 2002), Bandura's social cognitive theory (1986), expectancy-value theory (Wigfield & Eccles, 2002), and research concerning epistemological beliefs (Schommer, 1990, , 1994) are examples of frameworks which seek to highlight the interaction between human cognition and behavior.

Common for these theories is an emphasis on the powerful impact individuals' beliefs might have on their learning behaviors. In the following sections, some research concerning beliefs about teaching, learning and learners will be discussed, especially in relation to their potential influence on teachers' behaviors. Research concerning beliefs about intelligence will be given special attention, while research concerning epistemological beliefs and efficacy beliefs will be discussed briefly, to the degree that they might relate to beliefs about intelligence.

### **2.2.1. Epistemological beliefs**

Epistemological beliefs have been researched under a variety of conceptions, where the definition varies somewhat from study to study (see Hofer and Pintrich, 1997, and Schommer, 1994, for two different conceptions). In general, epistemological beliefs are beliefs about knowledge. According to Schommer (1994), they include beliefs about the source, certainty and organization of knowledge, as well as the control and speed of learning. There has been extensive research into the impact of epistemological beliefs, in a number of settings (Chan & Elliott, 2004; Kaplan & Akgul, 2009; Schommer-Aikins, 2002; Sinatra & Kardash, 2004).

Positing that certain types of beliefs might lead to the adaptation of certain types of goals, Bråten and Strømsø (2004) investigated the relationship between Norwegian teacher students' beliefs about knowledge (epistemological beliefs) and intelligence versus their achievement goals. The researchers found that the students' beliefs regarding the speed of knowledge acquisition predicted the type of achievement goals they adopted. Students who believed that learning would take place quickly, or not at all (belief in quick learning), were more likely to adopt performance goals than students who believed in gradual learning. At the same time, the authors found that the student teachers' responses to an instrument measuring implicit beliefs about intelligence were not as strongly related to the adaptation of achievement goals, although the results were in the predicted direction.

While Bråten and Strømsø argued that epistemological beliefs were thus stronger predictors of achievement goals than implicit beliefs about intelligence, it may be argued that certain epistemological beliefs can be included within beliefs about intelligence. Hofer and Pintrich (Hofer & Pintrich, 1997) argued that beliefs concerning the speed and control of learning were related to implicit beliefs about intelligence, and should thus not be treated as epistemological beliefs. Schommer-Aikins, on the other hand (2002), presented arguments

that such beliefs about learning did belong within the framework of epistemological beliefs, while acknowledging their origin within research on beliefs about intelligence. According to both conceptualizations, epistemological beliefs regarding the control and speed of learning are related to beliefs about intelligence.

Given the inclusion of items measuring beliefs concerning the speed and control of learning, it is likely that Bråten and Strømsø (2004) were leaning to the conception expressed by Schommer-Aikins (2002). Strømsø has also indicated this in personal communication (2009), regarding instruments measuring epistemological beliefs. It was indicated that certain items, concerning the speed and control of knowledge acquisition, could be understood to measure beliefs about intelligence.

Bråten and Strømsø's discussion might thus point to the sometimes unclear conceptualization of epistemological beliefs (Schommer, 1994), the findings possibly reflecting differences in the instruments applied to measure implicit theories of intelligence and beliefs about the speed and control of learning, rather than effect differences between epistemological beliefs and beliefs about intelligence per se.

### **2.2.2. Efficacy beliefs**

Efficacy is related to the belief an individual holds regarding his/her ability to succeed in a given situation or at a given task (Bandura, 1986; Bruning, Schraw, & Ronning, 1999), for instance the extent to which a primary school student has confidence in his ability to perform well in a mathematics test at school. Bandura introduced the concept of self-efficacy in his social cognitive theory (1986), while other researchers introduced the concept efficacy in relation to teacher thinking (Tschannen-Moran, Hoy, & Hoy, 1998).

Teacher efficacy is related to teachers' confidence or belief in their ability to affect student performance, in a given situation (Tschannen-Moran, Hoy, & Hoy, 1998; Woolfolk-Hoy, Hoy, & Davis). Bandura posited that teachers' sense of efficacy would influence teachers' behaviors in a number of ways; through the effort they invest, the goals they set, and the persistence and the resilience they demonstrate in the face of difficulty (1986). Tschannen-Moran and Woolfolk Hoy (Tschannen-Moran & Hoy, 2007) argued that Bandura's theories have been supported by an increasing amount of empirical studies, which have demonstrated

the relationship between teachers' sense of efficacy and student outcomes. Some researchers argue that teachers' efficacy beliefs are among the most influential beliefs they bring to the classroom, and might trump both other beliefs as well as academic knowledge (Hoy, Hoy, & Davis, 2009).

Teachers' sense of efficacy might be related to attribution theory, which poses several possible attributions for outcomes of success or failure. Individuals might assign performance results to ability, effort, task difficulty and/or luck. Teachers with a high sense of efficacy are confident that they can positively influence the learning and achievement of even "the most difficult student", and thus tend to attribute learning results to controllable factors such as effort, rather than uncontrollable factors such as ability or luck (Tschannen-Moran, Hoy, & Hoy, 1998).

Tschannen-Moran and Woolfolk-Hoy (Tschannen-Moran & Hoy, 2007) further argued that teachers' sense of efficacy is influenced by a number of contextual factors, of which students' ability is one. The authors related studies which had demonstrated that teachers revealed a higher sense of efficacy in relation to teaching academic or honours classes than in relation to teaching non-academic classes. Tournaki and Podell (2005) similarly demonstrated how high-efficacy teachers made less negative predictions of their students, and were more sensitive to student change, than their low-efficacy peers. The authors also demonstrated how student characteristics impacted on teachers' behaviors and predictions (Tournaki & Podell, 2005).

These findings illustrate the context-specific nature of efficacy beliefs, as well as the relationship between students' characteristics, such ability and teachers' efficacy beliefs. It seems likely that teachers' beliefs about intelligence, related to their beliefs about students' ability, might influence their sense of efficacy.

Finally, Tschannen-Moran and her colleagues (Tschannen-Moran, Hoy, & Hoy, 1998) argued that "in most cases, slightly overestimating one's capabilities has the most effective influence on performance", hinting at the effects of teachers' expectations on students' performance.

### **2.2.3. Beliefs about intelligence**

Since the 1980's Dweck and her research colleagues have conducted numerous research studies regarding people's personal beliefs, and have come up with a framework of "meaning systems". According to Dweck (2002; 2008), individuals assign meaning to their world and their experiences according to the beliefs they hold. Individuals who believe that personal traits are stable are called entity theorists, while individuals who believe they are changeable are called incremental theorists. Individuals can hold beliefs along a continuum between these two "extremes", but usually their beliefs tend towards one of the views more than the other.

According to Dweck and her colleagues, people who hold different views about the nature of intelligence (according to whether they believe intelligence is changeable, incremental view; or fixed and given from birth, entity view) assign different meanings to experiences of success and failure. Furthermore, research has demonstrated links between beliefs about intelligence and a number of adaptive and maladaptive learning behaviors, such as persistence in the face of difficult tasks, goal adaptation, reaction to failure, and the interpretation of achievement results (the meaning of initial and final feedback) (Dweck, 2002; Dweck, 2008; Dweck & Legget, 1988; Schunk & Zimmerman, 2006).

Dweck and her colleagues have argued that individuals who hold incremental views regarding intelligence are likely to adopt a mastery approach to learning; set high goals, enjoy challenges, persist in the face of difficulty, and see failure as a part of the learning process. On the other hand, individuals who hold entity views tend to adopt a performance achievement or performance avoidance approach to learning; set lower goals, avoid challenge, quickly give up when faced with difficulty, and see failure as an indication of inadequacy (Dweck, 2008). Supporting Dweck's theories, Bråten and Olaussen (1998) found that student teachers' incremental theories of intelligence were related to their learning strategies. Participants who held incremental views regarding intelligence reported using more learning strategies than participants who held entity views.

Schunk and Zimmerman (2006) demonstrated that according to several theories of motivation, self-beliefs are deemed central to motivation and achievement. Schunk and Zimmerman, in line with Dweck and her colleagues, contended that students holding incremental beliefs would be more likely to adopt mastery goals, while students with entity

beliefs would be more inclined to adopt performance goals. Both Schunk and Zimmerman (2006) and Anderman and Wolters (2006) hold that most researchers agree mastery goals are preferable to performance-oriented goals.

Anderman and Wolters (2006) summarized research concerning achievement motivation, which demonstrated that the types of goals students adopt might impact on academic motivation in several ways. According to their report, mastery goals are related to adaptive outcomes, and are associated with choice, effort and persistence. Mastery goals are also associated with applying deep learning strategies (Anderman & Wolters, 2006; Schunk & Zimmerman, 2006), and with low(er) levels of self-handicapping (Anderman & Wolters, 2006). While inconclusive, research also indicates that mastery goals at times lead to better achievement results relative to performance (especially -avoid) goals (Anderman & Wolters, 2006). This link is tentative, as effects on achievement might be both direct or indirect (influenced by other, contextual factors). On the other hand, fairly direct links have been demonstrated between performance (especially -avoid) goals and low grades, or maladaptive behaviour (Anderman & Wolters, 2006; Dweck, 2008).

Dweck (2002) reported a number of studies demonstrating the impact of adults' beliefs about intelligence on their behavior towards children, as well as the effects parents' beliefs in particular might have on their own feedback and behavior, and the potential impact on their children's beliefs. According to these studies, adults with different beliefs about intelligence (entity or incremental) might judge children differentially (Dweck, 2002). Adults with entity views proved more quick to judge children's performance than adults with incremental views, and their judgment was more rigid, as they did not change their perception due to contrary information as easily as adults with incremental views. Furthermore, adults with entity views regarding intelligence were more influenced by their initial expectations of children's performance levels than were adults with incremental views. Adults with entity views also held less confidence in their own ability to influence children's learning and performance relative to the adults who held incremental views (Dweck, 2002).

According to Dweck (2002), parents' theories of intelligence might predict whether they choose easy or challenging tasks for their children. Theories of intelligence might also predict whether parents attribute success to ability or effort, and the degree to which parents are concerned with receiving comparative (relative to other children) and normative feedback to

judge their children's ability (Dweck, 2002). Arguing that beliefs can be directly taught or indirectly learned, Dweck demonstrated how children's beliefs about intelligence were influenced by the type of feedback (emphasis on process or performance) they received by their parents (Dweck, 2002). She thus emphasized the influence parents' beliefs might have on the beliefs of their children.

According to Wigfield and Eccles (2002), young children judge themselves very favorably and often inaccurately, and tend to overestimate their own abilities. During the early years of elementary school, however, children are becoming more realistic and more sensitive to experiences of success and failure (Wigfield & Eccles, 2002). Along the same lines, Dweck (2002) argued that self-concept and sense of ability is increasingly important to children when they reach school age and start comparing themselves to others. At this stage (7-8 years of age), children start believing traits are more stable, and start using feedback and facts to evaluate their performance (Dweck, 2002). In 1999, Bruning and his colleagues argued that not much was known regarding teachers' beliefs about intelligence (p. 178). Furthermore, while teachers are seen to exert a strong influence on students' learning in general, research is scarce concerning the role of teachers' beliefs in the development of the beliefs of their students. It is likely that children at this stage are very sensitive to teacher feedback, however, in terms of the development of self-theories or beliefs.

Irrespective of this aspect, it is likely that beliefs about intelligence influence the thoughts and behaviors of students and teachers alike. As discussed above, students' beliefs might impact their learning strategies, especially their goal strategy and their coping mechanisms. Teachers' educational beliefs, on the other hand, might impact on their teaching strategies and general classroom behavior (Bruhn, 2005; Hashweh, 1996; Jordan, Glenn, & McGhie-Richmond, 2010), their sense of teaching efficacy and motivation on the job (Hoy, Davis, & Pape, 2006; Poulou, 2007; Rosenfeld & Rosenfeld, 2008; Tschannen-Moran & Hoy, 2007; Woolfson & Brady, 2009), which in turn might influence student beliefs, learning and outcome (Butler, 2000; Midgley, Feldlaufer, & Eccles, 1989; Rosenthal & Jacobsen, 1965; Sacks & Mergendoller, 1997). Research concerning teachers' beliefs, especially in terms of their impact on learning and achievement, will be discussed in the following chapter.

### **2.3. *Teachers and beliefs***

Nespor (1987) argued that teachers at times resort to beliefs, rather than knowledge gained through academic training, due to specific classroom conditions. Beliefs are particularly well suited for dealing with deeply entangled domains and ill-defined problems, characteristics which may well be used to describe the classroom context and the instructional encounters teachers face (Nespor, 1987). Nespor further argued that teachers, in situations where they feel stressed or have to react on impulse, might resort to beliefs rather than formal knowledge.

Research findings indicate that teachers' beliefs might influence their classroom behaviors in a number of ways (Butler, 2000; Dweck, 2002; Jordan, Glenn, & McGhie-Richmond, 2010; Midgley, Feldlaufer, & Eccles, 1989; Rosenthal & Jacobsen, 1965; Staub & Stern, 2002). The following sections will review some influential early research conducted regarding the impact of teachers' beliefs on student outcomes, some evidence concerning how beliefs might be communicated in a classroom setting, the extent to which teachers' beliefs are consistent with their teaching practices, the extent to which research indicates teachers' beliefs might be changed through formal interventions, as well as the role of teacher socialization on the formation of teachers' beliefs.

#### **2.3.1. The self-fulfilling prophecy or the expectancy effect**

In 1965 Rosenthal and Jacobson published a report ("Pygmalion in the classroom") that has since become a classic, and which spurred on a wealth of investigation into "expectancy effects". All children from a San Francisco elementary school were administered a test supposedly designed to identify potential academic "bloomers"; in other words, children that were likely to raise their achievement significantly in the next 8 months. As a matter of fact, the children were randomly assigned to the experimental groups, and the results from the test (a standard IQ test) were not used. The children were not informed of the results of the test, thus the only real difference between the groups were the teachers' expectations. When the children were re-tested after eight months, one year and two years, the children initially identified as potential "bloomers" had lived up to their teachers' expectations; their achievement was raised significantly compared to that of their peers (Rosenthal & Jacobsen, 1965).



The study by Rosenthal and Jacobson spurred on a series of studies, and was at the center of a lot of controversy for the following decade. Rosnow and Rosenthal (1997) discussed the “Pygmalion” study and meta-analyses made of studies concerning expectancy effects across eight different areas, ranging from laboratory experiments to everyday situations. They reported that a large number of the studies conducted since the time of “Pygmalion” demonstrated that the effect was, in fact, real. A number of moderators of the effect had been identified, however, which served to “calm” the criticism and the outcries concerned with the potentially detrimental effects by teachers’ low expectations on student achievement. In terms of expectancy effects on “learning and ability”, the effect was moderated by a number of factors: teachers’ prior contact with their students; teachers’ prior beliefs (whether teachers’ expectations were rooted in stereotypical prejudice; “first impressions count, but some count more than others!”); and teachers’ sensitivity to “expectancy cues”. Expectancy cues here refer to interpersonal skills, such as the ability to ‘read’ others. Finally, the effect was also moderated by “competing prophecies”, held by the students. This refers to the fact that if a person holds very stable impressions about him/herself, this impression might “rub off” on others, and possibly overwhelm an expectancy effect. The meta-study by Rosnow and Rosenthal thus demonstrated that teachers’ beliefs and expectations might impact on their classroom behavior, but also emphasized the importance of other, contextual factors, such as the teacher-student relationship and the teachers’ interpersonal skills (Rosnow & Rosenthal, 1997).

A study demonstrating the potential link between teachers’ and students’ beliefs was performed by Midgley, Feldlaufer and Eccles (1989), who investigated the impact of teachers’ efficacy beliefs on students own beliefs. Measuring the students’ self-beliefs in mathematics (expectancies, perceived performance and perceived task-difficulty) during a time of teacher change (the students transferred to junior high school), the researchers found that changes in teachers’ sense of efficacy impacted on students’ beliefs. A change from teachers with high efficacy in mathematics to teachers with low efficacy in mathematics negatively impacted students’ self-beliefs in the subject. The following section will illustrate some manners in which teachers’ might communicate their various beliefs to students.

### **2.3.2. Communicating beliefs**

Teachers might communicate their beliefs both explicitly, through for instance verbal feedback, as well as implicitly, through conscious and/or subconscious behavior. Discussing performance versus mastery goals, Anderman and Wolters (2006) emphasized how teachers' perceived policies and practices might influence students to adopt goals in line with teachers' expectations. The researchers argued that teachers' policies and practices are perceived by the students as a "constellation of behaviours", which communicate specific goal types.

Rosnow and Rosenthal reported that teachers' expectations of a student might influence the affect they show as well as the effort they exert towards the student (1997). They synthesized this finding in what they termed an *affect-effect* theory: *"The increase in teaching effort is theorized to reflect the teacher's increased belief that the student is capable of learning, so that the effort is worth it"* (Rosnow & Rosenthal, 1997, p. 54). Teachers might communicate their high expectations of a student through creating a warm socio-emotional climate, providing more input, and giving the student more opportunities to respond or provide output. Finally, they might provide differential verbal or non-verbal feedback to this student.

Relating to experimental research, Rosnow and Rosenthal (1997) described a number of mediation factors which were identified to communicate expectancy cues. Verbal cues, non-verbal cues and tone of voice were all identified as mediators, serving to pass on expectancies and leading to subsequent differential results. They discussed research which demonstrated the potential strength of human non-verbal cues, and how people (for instance students) are able to and predict behavior from very limited information (Rosnow & Rosenthal, 1997). These findings point to the potential impact by teachers' implicit beliefs on the expectations passed on to students, especially through non-verbal cues, as well as their behaviors in the classroom.

### **2.3.3. Teachers' beliefs and teachers' behaviours**

Research has wielded widely different results in the matter of the impact of teachers' beliefs on their classroom behaviours. A number of studies have demonstrated strong relationships between teachers' beliefs and actions, arguing that beliefs work as powerful influences on teachers' practices. Tomchin and Impara (1992) found that teachers' beliefs were critical in their attitudes towards and subsequent decisions regarding student retention. Jordan and

colleagues (Jordan, Glenn, & McGhie-Richmond, 2010) found that teachers' beliefs regarding inclusion in the classroom had significant influences on their practices, and Sinatra and Kardesh (2004) reported that epistemological beliefs predicted pre-service teachers' openness to new methods of teaching. Furthermore, Hashweh (1996) demonstrated the impact of epistemological beliefs on teaching strategies, and Berry (2006) found that teachers' instruction of disabled students was influenced by their implicit theories of teaching and learning.

Deal and White (2006) held that several factors work to influence teachers' developing beliefs, importantly teacher preparation and teaching context, in addition to prior beliefs. The authors found consistency between teachers' beliefs and practices. Bullough and Baughman (1997) did a longitudinal investigation into a teachers' professional development, demonstrating how the teachers' beliefs about teaching were closely related to her personal beliefs. Furthermore, her beliefs manifest themselves as metaphors for teaching, reflected in her classroom practices. Richardson and colleagues (Richardson, Anders, Tidwell, & Lloyd, 1991) found that teachers' beliefs, as derived through interviews, were generally consistent with their observed classroom practices. The case study of one teacher who demonstrated inconsistency between beliefs and practices indicated that the teacher was going through a change of beliefs. The authors concluded that the teachers' change in belief preceded her change in teaching behavior.

On the other hand, Wilcox-Herzog (Wilcox-Herzog, 2002) found no relationship between teachers' reported beliefs and their observed actions, and Muchmore (1994) found that the beliefs and practices of reading teachers were complex and largely inconsistent. How to reconcile these differing results?

Chen (2008) also reported inconsistency between teachers' pedagogical beliefs and practices regarding technology integration, and went on to discuss various possible reasons why teachers' behaviors might not be consistent with their beliefs. Chen argued that the extent to which teachers' beliefs and actions were consistent, was influenced by contextual factors such as educational policy, school and classroom culture, and teacher education training. Referring to Tabachnick and Zeichner (2003; in Chen, 2008), Chen held that teachers' had to negotiate conflicting influences from organizational support and organizational constraints, the consistency between their beliefs and practices a result of which. Furthermore, Chen pointed

to the nature of belief systems, and the influence of conflicting beliefs. While a teacher might express a certain belief, such as a belief in the importance of using technology in the classroom, other conflicting beliefs, such as the importance of keeping lessons effective and predictable, might determine the eventual teaching behavior. The discussion by Chen points to the importance of context, as well as the complicated nature of beliefs.

Along the same lines, Haser and Star (2009) found that although teachers' behaviors were influenced by their beliefs, there were also inconsistencies between their beliefs and their behaviors. The teachers held both teacher-centered and student-centered beliefs concurrently, and demonstrated mainly teacher-centered practices with some elements of student-centered approaches. The authors concluded that the social context of teaching as well as the nature of beliefs, allowing for the existence of inconsistent, concurrent beliefs, led to this result.

In addition to this, the weakness of teachers' self-report of beliefs is often emphasized (see Bryman, 2008, p. 256). There are several reasons such a method might not give an accurate representation of the beliefs held, for instance the existence of implicit and/or conflicting beliefs, or the possible unwillingness to relate beliefs that are not regarded as socially acceptable. In order to gain insight into teachers' actual beliefs and classroom practices, observation of behavior might thus be the most adequate method of research. Observation teamed with interviews might also facilitate insight into the degree to which teachers' beliefs and practices are consistent, and whether the teacher might hold conflicting beliefs.

In sum, while much research points to the strong influence by teachers' beliefs on their classroom practices, the importance of teaching context must not be forgotten. Also, research demonstrates the complex and sometimes seemingly inconsistent nature of beliefs, highlighting the importance of research methods sensitive to the possible existence of implicit and/or conflicting beliefs.

#### **2.3.4. Formation and change of teachers' beliefs**

The previous sections have demonstrated that while beliefs are necessary and helpful in many ways, they are not always the most appropriate constructs to guide behavior. In terms of teachers' beliefs and behaviors, it has been demonstrated that beliefs might under some

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circumstances lead to inappropriate teaching strategies, that impact negatively on student learning and achievement.

While much is yet to be explored regarding the impact of teachers' beliefs about intelligence on student outcome, it seems that beliefs which foster feedback related to effort and encourage the development of mastery goals, result in better learning environments and subsequent student achievement than beliefs which foster performance feedback and encourage performance goals. This is emphasized in Dweck's research regarding self-theories, and demonstrated through her description of the impact of incremental or entity beliefs regarding intelligence (2008). Furthermore, teachers' expectations, which might be influenced by their beliefs about intelligence, might influence students' outcome. It has been indicated that slightly overestimating students' ability levels leads to the best achievement results (Tschannen-Moran, Hoy, & Hoy, 1998).

Discussing the results of the Pygmalion study, Rosnow and Rosenthal (1997) maintained that most teachers in most cases held appropriate beliefs and adopted appropriate classroom behaviors, and that the effect of inappropriate beliefs, due to moderating factors, in most cases did not have as strong an effect on student outcome as in the Pygmalion study. Nevertheless, in certain contexts, some teachers' beliefs might impact negatively on student learning and achievement. Teacher educators have thus been concerned with ensuring prospective teachers enter their professional lives with adequate beliefs (Tillema, 2000).

Woolfolk Hoy, Davis and Pape (2006) referred to the ecological model of beliefs suggested by Bronfenbrenner (1986), arguing that teachers beliefs are affected by their immediate surroundings, such as students and classroom context; their wider surroundings, such as regional or national policies; and the cultural context, such as norms and values. This is in line with the position taken by Zeichner and Gore (1990), which held that teacher socialization is an interactive process, where teachers both influence and are influenced by the structures within which they exist. In such a view, teachers both exert influence on and are influenced by the students they teach, the classroom context within which they teach, their workplace social settings and so on and so forth. What is the impact of teacher education programs in such a setting?

Lortie (1975, reprint 2002) argued that teachers had engaged in thousands of hours of what he termed an “apprenticeship of observation”, which served as a powerful basis in their socialization as teachers. Lortie argued this apprenticeship formed the basis of teachers’ predispositions (or beliefs), and functioned as more powerful influences on their behaviors than either pre-service training (such as formal education) or workplace socialization. Jordell (Jordell, 1987) on the other hand, argued that early life experiences were likely to diminish with time and become less influential, while new experiences would be more important. In contrast to this stance, Nias (1986, in Zeichner and Gore, 1990) argued that experiences from being a pupil are influential and very long lasting. Taking the middle stance, Deal and White (2006) found that both external factors, such as teacher preparation and teaching context, as well as predispositions, or prior beliefs, worked as powerful influences on teaching practices.

It is possible that some beliefs, strongly related to senses of self and identity, have a tendency to endure, while other beliefs might be more transient in nature, and likely to dissipate with time. Furthermore, it is likely that context, such as the nature of the teacher education program and the school culture, as well as teachers’ individual characteristics, such as openness to new experiences, determine to which degree prior beliefs or more recent experiences, such as teacher education or intervention programs, become dominant.

While intervention programs have been abundant, it seems changing teachers’ beliefs is a rather uncertain practice. Weinstein (1990) reported that most researchers agree teachers’ implicit beliefs about teaching function as filters through which teacher education programs are interpreted, in some cases serving as an obstacle for conceptual change. Efforts to change teachers’ beliefs have generally achieved only moderate success (Richardson, 1996; Wideen, Mayer-Smith, & Moon, 1998), which might be explained through the belief perseverance phenomena previously discussed. Research has demonstrated that explicitly held beliefs are more susceptible to change than those that are implicitly held (Handal & Lauvås, 1999; Hoy, Hoy, & Davis, 2009; Kyles & Olafson, 2008; Minor, Onwuegbuzie, Witcher, & James, 2002), which leads to the challenge of ascertaining teachers’ prior, subconscious (or implicit), beliefs. Bruner (1996) held that teachers hold tacit and implicit “folk theories” concerning learning and learners, which can work as strong influences on their teaching practices. Bruner further argued the importance of confronting teachers with their assumptions, in order to thus equip them with more adequate theories (1996).

Intervention efforts such as “reflective courses” are likely a result of these types of arguments (Haser & Star, 2009; Hoy, Hoy, & Davis, 2009; Kyles & Olafson, 2008). Tillema (2000) reported research indicating that reflection will be most effective if implemented after teaching practice. Furthermore, Breckler and Wiggins (1989, in Bruning et al, 1999) demonstrated how beliefs formed on the basis of affective, personal information, will be resistant to change due to logical argument based on knowledge and “facts”. According to Breckler and Wiggins (1989), belief change will be more effective if the intervention effort is based on arguments of the same type, again pointing to the necessity of ascertaining the nature of prior beliefs.

Richardson (1996) related several research studies which had demonstrated positive effects by in-service development/ intervention programs on changing teachers’ beliefs about subjects or promoting constructivist views regarding teaching. Richardson did emphasize, however, that the research results were widely different, indicating that this was related to the type of intervention program as well as the type of belief confronted. Some programs seemed to result in the solidification, rather than change, of teachers’ beliefs, and some beliefs were harder to change than others. In the instance of one case study, a teacher’s prior beliefs served to reverse the intended message in a way to make it consistent with, and reinforcing, her prior beliefs. The research mentioned by Richardson that did effect belief change was related to either promoting constructivist and reflective attitudes, or more specifically subject related (for instance beliefs regarding teaching mathematics or reading comprehension).

While other research findings indicate that mastery experiences and reflective thinking might facilitate teachers’ beliefs changes (Kyles & Olafson, 2008; Tillema, 2000; Tschannen-Moran & Hoy, 2007), some researchers have argued that interventions at the individual level are not likely to produce effective, lasting results, all the while the larger institutional factors do not provide settings compatible with the specific intervention (Richardson, 1996; Zeichner & Gore, 1990). Researchers point to the different agendas and expectations of universities and schools, arguing that positive interventions will be overwhelmed, teachers reverting back to prior beliefs, if all the different actors of the larger educational system are not pulling in the same direction (Wideen, Mayer-Smith, & Moon, 1998). This points to the importance of the social and cultural context within which teachers are training and working, which will be discussed in the following chapter.

## **2.4. Summary**

The present chapter has investigated the nature of beliefs, with a particular focus on teachers' beliefs about intelligence. Beliefs have received considerable attention within social research, and several different research themes have emerged (see 2.1 and 2.2). Through a multitude of different approaches to the study of beliefs, it has been argued that beliefs influence and predict human behavior to a considerable degree. As such, it has become the focus of many researchers interested in theories of learning, teaching and achievement.

Beliefs are formed through an interactive process, where new information encountered is interpreted and assimilated in light of the existing belief base. At the same time the existing belief base might be influenced and accommodated by new information (see 2.1.2). Human beliefs are organized in complex belief systems, where the strength of associations between beliefs determines their relative importance in the system (see 2.1.3). Research findings indicate that early beliefs have a tendency to take a central and prominent position in people's belief systems, given the amount of connections formed with subsequent information (see 2.1.2).

A primacy effect has been described, which indicates that early beliefs are relatively resistant to change due to their centrality in the belief system (see 2.1.2 and 2.1.4). Furthermore, they tend to be related to feelings of identity, due to the amount and strength of connections with associated beliefs (see 2.1.4). The reproductive nature of human memory further serves to facilitate the perpetuation of prior beliefs, even beyond the point where they function as accurate reflections on reality. Simultaneously, individuals might comfortably hold concurrent, incompatible beliefs, due to the compartmentalized and sometimes illogical organization of beliefs (see 2.1.4).

Beliefs can be implicit or explicit in nature (see 2.1.1). Research indicates that implicit beliefs might influence day-to-day decisions and behavior to a large extent, especially in relation to entangled or ill-defined domains (see 2.3). This is largely related to the affective qualities of beliefs, which means they might easily be activated in terms of guiding images during stressful situations or moment-to-moment decisions.



A variety of research contends that beliefs regarding intelligence might influence teachers' behaviors in the classroom (see 2.3). Furthermore, it has been demonstrated that beliefs might influence student learning and achievement in several (direct and indirect) ways, importantly through the types of learning strategies adopted by the students (see 2.2.3). It has been indicated that parents' beliefs about intelligence might influence their children's beliefs, while the relationship between teachers' and students' beliefs has not been investigated to the same extent (see 2.2.3).

Teachers might communicate beliefs in conscious as well as unconscious manners, through verbal as well as non-verbal feedback in the classroom (see 2.3.2). Furthermore, teachers' beliefs have proven relatively resistant to change through intervention courses, largely due to disparities between efforts to change beliefs and the larger contextual factors (see 2.3.4). Making implicit beliefs explicit through reflection seems to be one prerequisite to facilitate belief change, indicating the importance of investigating teachers' implicit beliefs about intelligence (see 2.3.4).

Finally, research has indicated that teachers' beliefs are influenced by both immediate as well as larger contextual factors (see 2.3.4). It is likely that the extent to which later experiences, such as intervention efforts or work experiences, might influence and change prior beliefs, is dependent on the strength and centrality of the beliefs in question, as well as the nature of the specific, newer, experiences.



### 3. Educational context

*"Culture is what gives meaning to life. Culture is the intellectual framework that connects beliefs, values and knowledge with action. Through the routinisation of action culture is sedimented deeply into the unconsciousness of individuals."* (Bates, 1992, p. 4)

This project seeks to investigate, amongst other things, the relationship between teachers' beliefs and their cultural backgrounds. In the words of Richard Bates (above), culture and thoughts are inextricably intertwined. This points to the relevance of investigating the cultural contexts within which beliefs are formed and expressed.

As indicated in the introduction (see 1.5) an investigation into the cultures of Norway and Australia cannot be given fair treatment in this thesis. As such, educational context will be investigated in relation to dominant *cultural themes* in Norway and Australia. According to Williamson and Galton (1998), culture is the shared thoughts, experiences and norms that 'knits a community together'. The following chapters will investigate certain shared experiences (educational history) as well as national values (egalitarianism) in Norwegian and Australian societies, respectively.

Brief descriptions of the histories of education in Norway and Australia will be given, to demonstrate the frames within which their educational systems have emerged. Within these historical backdrops are also identified some dominant themes and values which have served to influence national identities in Norway and Australia.

To ensure equal opportunity of their citizens has been a dominant/recurrent theme from the early days of both societies. As such, egalitarianism as a value, and the way it is pursued in Norway and Australia, will be discussed, with special emphasis on the manifestation of egalitarianism within the respective school systems in Norway and Australia.

#### **3.1. *Brief history of education in Norway***

Høigård, Ruge and Hansen (1971) have provided a comprehensive review of the history of schooling in Norway, which is drawn upon in the following two sections.

### **3.1.1. Early schools**

The early development of a Norwegian educational system was largely governed by the political context, where Norway from the 14th century and for about half a millenium was either governed by Denmark (until 1814) or in union with Sweden (from 1814 till 1905). The emergence of both literary traditions and academic endeavours in Norway were influenced by this situation. While our neighbouring countries built their own universities and started printing presses in the 15th century, the first university established on Norwegian soil came nearly 400 years later. Academic and literary developments were slow to develop in Norway relative to the neighbouring contries.

The church was responsible for the first schools in Norway. These were cathedral schools started in the middle ages, and for centuries the only real organized educational efforts seen in the country were those of educating the clergy. The first attempts at a general education were also launched by the church, when after the reformation it was held that all Norwegian children should be taught the basic religious doctrine through the catechism. Precentors (Norwegian; klokkere) at the parishes were put in charge of this education; adequately educated precentors were scarce, however, and the instruction did not include learning to read or write, but rather repeating the catechism after the teacher, who generally possessed the only copy.

The beginning of a universal educational system in Norway emerged with the law of 1739 (Landsskoleloven), which stated that all children in the countryside above the age of 7 should attend school for 5 years, in order to learn Christian doctrine as well as learning how to read. While Norway may have been lagging behind her neighbours in terms of educational developments, Denmark-Norway were among the very first in Europe to pass such a policy. Except for replacing the word 'Denmark' with 'Norway' in the text of 'Landsskoleloven', the law was word by word identical to the similar law issued in Denmark on the same day. While the fact that a separate law was issued for Norway at all pointed to an increasing ideological distinction between the countries, the text illustrated Norway's continued dependency, in terms of both language and policy, on Denmark.

The law of 1739 was met with strong resistance from the Norwegian farmers, who needed the children for chores on the farms and could not perceive the benefit of the proposed education.

In the end, the degree to which the intent of the law was achieved dependent largely on the efforts and pressure by the local clergy. The progress of implementing the new requirements thus varied greatly from parish to parish, along with the quality of the schooling itself. While the actual implementation of schooling was thus slow and varied in success, the law represented a significant shift of principle towards a system of universal education.

In the cities, where there were no legal requirements for universal education as of yet, there were not enough schools to cater for all the children. A lot of children in the cities never attended school. At the same time, the cities were where the most prestigious educational institutions were erected, leading to an increasing division between illiterates and well-to-do private school children. Entry requirements for the "latin" schools (the former cathedral schools) were made high so as to keep children of the lower classes out of these institutions. Simultaneously, the public school (allmueskolen), aptly called the 'Poor school' (fattigskolen), was largely unpopular amongst the middle class. Consequently, children of middle class frequently attended small private schools. The education system was emerging as a tool for social division.

Education in Norway was at this time characterized by inequalities, partially on the basis of mercantilism which only affected the cities. Education in the countryside had less resources and was largely limited to "rotational schools"; this meant there was no school building, rather the teacher and the children moved from house to house. While a larger percentage of the population in the countryside actually attended school, the city schools were generally of higher quality. Increasing differences in attainment and quality of schooling were emerging between country and city, as well as between the cities' rich and poor.

The middle of the 18th century and the age of enlightenment saw a shift towards rationalistic thinking in Europe. While the educational foundation for the 16th and 17th centuries were largely of religious and moral character, the new ideas held that children should be prepared for practical challenges in their life on earth, not just a life in heaven. While children still received religious (Christian) education, the emphasis was placed on knowledge that was deemed practical. Ideas from the German philanthropists, who were in turn influenced by the thinking of Rousseau, gradually spread to Norway and exerted influence on both education and society at large. The philanthropic movement meant pedagogical thinking achieved a new identity and value in Norway. Of special importance was the agenda of the 'new' clergy

trained in the late 18th century, who were largely influenced by rational thinking. These (aptly named 'potato priests') were motivated to provide their parish with worldly knowledge, and encourage progress in the countryside, for instance through the growing of potatoes.

Around the same time, compulsory primary education in the cities was finally achieved. The law of 1848 stated that all children from the age of 7 should attend school, and that the cities should provide free, public education. This law was possibly more important in the sense that it actually was passed, than in its form. Slowly, over the next decades, the number of children in the cities who did not attend school declined.

The middle of the 19th century saw a change of general pedagogical orientation in Norway, where the citizens were to be enlightened in order to become active and knowledgeable participants in society. Around this time Hartvig Nissen (in 1860) managed to more or less single-handedly create and have passed a law which for the first time committed the state to provide funding for schools in the countryside. Until then, costs had largely been covered by the municipalities and the church. Importantly, the countryside rotational schools as a rule was interchanged for schooling in a school building, which was a big improvement in quality.

### **3.1.2. The unified school system**

The emergence of the current educational system in Norway was not seen until the end of the 19th century, when demands were made that education in the cities and in the countryside should become 'equal'. At this time, Norway was marked by large differences in terms of quality and attainment, both between the countryside and the cities, and within the cities themselves.

This was a time of strong nationalistic movement in Norway; the country was tearing away from the union with Sweden and Denmark, and all things "Norwegian" were upheld and romanticised. The free farmer was seen as the very incarnation of Norwegian-ness. In this setting, movements were made to strengthen the national element in schools. The underlying idea was that the same educational opportunities should be afforded all students, whether they lived in the countryside or in a city, and regardless of social class. This basic premise has remained a cornerstone of Norwegian educational policy until the present day.

Two parallel laws of 1889 ('Folkeskolelovene') addressed educational issues in the cities and in the countryside (country and city schools were still treated by separate laws). All public primary schools were henceforth called 'folk schools'. These laws had a curious basis, as the current prime minister (Johan Sverdrup) in 1884 sent an open letter, addressed to the church minister, to the newspaper Dagbladet, containing the declaration of a comprehensive new school policy (Sverdrup later argued he was simply enjoying his right as a citizen to pass on suggestions.). This letter ended up serving as the basis of the new school policy. Two main points were put forth with this law; schools in the cities and in the countryside should attain the same quality, and Norwegian and 'new Norwegian' dialects should be given equal prominence in the educational system.

In the letter by Sverdrup it was emphasized that a child should have the opportunity to rise through the educational ladder without 'unnecessary delay'. This was related to a growing idea, related to the earlier efforts by Hartvig Nissen, of a unified school system ('enhetsskolen'), where no child should be at a particular advantage in terms of state institutions due to his/her social or economical background. Given the disparate parallel school systems existing at the time; one in the countryside and three in the cities, this would require a considerable change of/significant shift from the present situation.

Closely related to the early ideas of the unified school was the law of 1896, which concerned changes in the 'higher' public school (a type of secondary school/gymnasium of the day). If a unified school was to be achieved, this meant connecting the folk school and the higher school, meaning the system had to be adapted with this in mind. The lower school ('folkeskole') was strengthened in order to prepare the students for the higher school. In the end, these two laws (1896 and 1889) gave way to the first implementations of a unified system, where all Norwegian children (in the cities) should attend a unified 'folk school' for at least 5 years.

The full implementation of a unified Norwegian schooling system was still far off, with developments frequently stalled by opposing political positions. At this stage the two major parties in Norway, 'Høyre' and 'Venstre' (right/conservative and left/liberal), and after 1905 the socialist party 'Arbeiderpartiet' (labour), were becoming increasingly clear and differentiated in their political stances. The matter of the development of a national unified schooling system remained one of the most contested debates.

In this respect, the next significant development might arguably be called a 'coup'. A budget policy, rather than a law, was passed in 1920, stating that only middle-schools based on 7 years of 'folk school' would receive public funding. This policy statement had a rather strong effect, where the large majority of Norwegian municipalities, excepted only by the very richest, quickly complied.

While the educational focus till this time had largely been to achieve a unified school, equal for all, voices were now also heard criticizing the too equal system. If all individuals were required to move at the same pace, this could thwart the progress of the better children, and discourage the weaker ones, some argued. The first ideas regarding differentiation and individualization in school were thus put forth. It was proposed that differentiated individual work within the same classroom would alleviate the need for parallel school systems.

The Depression in the 1930's brought a change of beliefs of the Nordic countries (Antikainen, 2006), where governments became more actively involved in social planning and intervention and took increasing responsibility for the welfare of their citizens. The equal social rights of all citizens were emphasized, through measures to attain full employment, and reduction of inequalities related to income and gender. In Norway, the idea of the unified school was central to the ideas of the new Norwegian 'welfare state'. 7 years of elementary school ('folkeskole') was legally required through the law of 1936. This was made the norm in both countryside and city, to be followed by 'realskole' and gymnasium.

Further social developments in Norway were stalled by World War 2 and the German occupation. Post-occupation saw a focus on national unity, and on re-building the nation through economic growth (Mediås, 2004). Equality was reiterated as a central value, and even more responsibility was placed on the government. Schools should not only raise the general academic standards of Norwegian citizens, but also maintain unity through reducing economic, cultural or social difference (Mediås, 2004).

The shift from 7 till 9 years of compulsory education happened gradually. In 1959, another law concerning the 'folk school' was passed. Through this, individual municipalities were free to introduce 9 years of compulsory schooling through special arrangement with the department of education. Importantly, this was the first time schools in the countryside and in the cities were included within the same law. By now, education was hailed to be the 'great



equalizer' in terms of social inequalities (Antikainen, 2006). Simultaneously, a strong belief in science and the ability and use of quantification saw the emergence of extensive pedagogical research. Unlike the earlier reforms, this reform was to be tested and tried before it was passed. The change was implemented gradually, and finally passed as a law in 1969, which for the first time concerned schooling in the countryside and in the cities alike. The Norwegian unified school system, envisioned almost a century earlier, was finally realized.

1975 marked another significant turn in the history of Norwegian education, when a law was passed stating the equal right by all children to receive education adapted to their individual ability. Until this stage students of special needs had been educated separately in 'normal' and 'special' schools, but from now on they were to be integrated with other students in the 'normal' school (Jenssen & Lillejord, 2009). The gap in relation to both ability and needs within the classroom widened, and resources were shifted from segregation in parallel schools to individualization within the same school. Integration and individualization in schools have remained central in Norwegian educational policy until the present day.

The most recent development of the unified school is the change from 9 to 10 years of compulsory education (1997), which remains today.

### **3.1.3. Present contex**

Today, Norway has about 425 000 children enrolled in primary schools (Utdanningsdirektoratet, 2010). The public school system has dominated Norwegian education since the unified school system emerged, with a parallel decline in the provision of private schooling. The large majority of children in Norway attend public schools; out of a total of more than 3000 primary schools, only about 150 of these are private, accounting for only about 0,5% of the schools (Utdanningsdirektoratet, 2010). The public primary schools are characterized by mainstreaming, where students with learning disabilities are rarely held back, and students of high ability are rarely accelerated (Undheim, Nordvik, Gustafsson, & Undheim, 1995).

The few private schools that do exist in Norway largely fall within two groups; those sprung up around the 1860's which were based on conservative Christian movements that did not

accept the religious changes in public schools, and schools such as the Steiner school or Montessori, which emerged about a century later, largely on the basis of European influences.

The end of the 20<sup>th</sup> century has seen changes within economics, it and communications that have influenced communities worldwide, so also in relation to educational systems (Lie, Linnakylä, & Roe, 2003). Human capital theory has grown in prominence as an economic model, and a shift can be noted where education in the present context is less a tool to instill morality in the population, or even to educate democratic citizens, and more an economic tool, where the balance between input is and output is carefully weighed. The emergence of the information society has brought new awareness of citizens as resources, and of education as the means to increasing the value of these resources (Mediås, 2004). In a global market economy, Norwegian institutions have to compete internationally, and the terms quality and results are increasingly applied.

While these trends have influences educational systems worldwide, the Norwegian welfare state is still committed to providing extra resources for the weak and alleviating 'unfair' disadvantages both in society at large and within education in particular. The wealth of the nation, largely based on oil resources in the North Sea, have provided the means to maintain an elaborate system of social services in Norway. The biggest government expenditure in 2008 was 'social protection', which includes grants to people who are unfit to work or otherwise disadvantaged (SSB, 2010b). While it is largely accepted today that educational systems generally tend to reproduce, more so than reduce, social stratification, efforts are made to identify the sources of inequality in education and reducing the impact of these (Bakken, 2010). As such, inclusive practices in education stand strong, and much resources are spent on alleviating the disadvantages of minority students, disabled students, and students with diagnosed learning difficulties (Lie, Linnakylä, & Roe, 2003).

Simultaneously, critical voices have argued that Norwegian schools do not cater for students of higher ability, as an unproportional amount of resources are directed at 'pulling along' the weaker students. Critics have voiced concern over the lack of qualified engineers and other science graduates for the industry (Dahle, 2008). International tests such as PISA and TIMSS have in the last decade indicated Norway is behind western countries with which the nation would like to compare itself (Kjernsli, Lie, Olsen, & Roe, 2007; Lie, Linnakylä, & Roe, 2003; Roe & Solheim, 2007). Comparisons between international tests in 2000 and 2006

demonstrate a declining tendency in Norwegian students' scores within science, reading and mathematics, where Norwegian students by 2006 scored significantly lower than the OECD average in all three subjects (Kjernsli, Lie, Olsen, & Roe, 2007). Government goals to educate science graduates of a high level have led to reports concerning how to improve the level of mathematics in school (Kunnskapsdepartementet, 2010). Here a tendency might be seen, where steps to cater for children's individual needs at all levels, including those of high ability, is emphasized.

Also, in an increasingly diverse Norwegian population due to migration, certain groups seem to feel their needs are not met to a satisfying degree within the public school system, largely due to religious affiliations. As such, new private schools are likely to emerge in Oslo in the near future (Karlsen, 2010).

### **3.2. *Brief history of education in Australia***

Australia started as a settlers' society under the British Commonwealth, and has a relatively short contemporary history. The continent was originally inhabited by Aborigines and Torres Strait Islanders for thousands of years. The first European settlers, made up in part of convicted criminals, arrived towards the end of the 18th century. The treatment of the indigenous population since then and into the 20th century has later been recognized as a bleak chapter of modern Australian history, producing tensions that have only in recent years started to be reconciled.

The emergence of an educational system in Australia is closely tied to the specific events of New South Wales (NSW), as the first colony. Given the concerns of the current research project are related to teachers working in NSW, historical events related to Australia at large and NSW in particular will both be referred to, to the extent that they are of relevance. Alan Barcan (1980) has provided a comprehensive review of the history of schooling in Australia, which was drawn upon in the following chapter.

#### **3.2.1. Early schools**

Educational efforts in the early years of the colony were characterized by the specific social and political settings of a new pioneering society (Barcan, 1980). Barcan in his book argued

that the emerging society at large, as well as education in particular, was very much characterized by attempts to introduce established institutions of 19th century England in a new and different context.

Australia in 1788 was a settlers' society, made up of a large number of poor convicts and a few officials. There were a lot more male than female convicts, traditional family life was scarce, and stray kids roamed the streets. It was a tough and unsentimental society, with large disparities in terms of material wealth, education and class between the large number of poor convicts and the small number of well-to-do officials. A middle class was practically absent in Australia in the 18th century.

A society under the British crown, it was largely assumed that the educational system in Australia would mirror that "at home". In England, education of the poor was left to the churches, the middle class organized private schools, while the upper class took care of themselves, through for instance private tutors. This might be compared to the situation in Norwegian cities around the same time.

Funding for church schooling in Britain was largely achieved through church societies and rich philanthropists, which were not present in Australian society in the early days. Given the large disparities between the Australian and British society, especially in terms of the absence of a middle class, it soon became evident a similar system would not suffice. The government realized they would have to step in, setting aside land for the church, as a means to secure financial aid for education.

Several government officials at this time advocated the need to separate children from the bad influence of their convict parents. The focus of Australian education in the early days was thus to alleviate the social and moral problems of a tough, new society. The focus was on reading the catechism, which was assumed would lead to moral improvements too. While some free schooling for the poor was achieved, not much focus was afforded education at large; workers were in high demand, which minimized the importance of formal education.

From the early, largely religious schools, catering for young children of the lower classes, a variety of establishments slowly emerged, catering for children of low, middle and high classes. No unified educational system was established, and until about 1800 distinctions

between state, religious and private schools remained blurred. At this stage most schools received some government as well as private aid, and all taught the catechism of the English church.

Towards the end of the 18th century, the religious affiliation in both society and education broadened. The climate in schools was one of tolerance and cooperation, largely on the grounds of limited resources and scarcity of trained teachers. From the government it had simply been assumed that the (Anglican) Church of England would assume dominance in education (which it did in the period 1825-1831), but it was becoming evident that this was another idea attached to the social and political reality of "old" England, proving insufficient in the new setting.

The new Australian society included a variety of religious affiliations; by the early 19th century the Anglicans were in (a small) dominance, while nearly one third of the population was Catholic. There was a presence also of Presbyterians and Methodists, and all four churches wanted to cater for the education of their young. Religious affiliation was closely related to social class. While Anglicans were mainly of upper and lower classes, Catholics were largely poor Irishmen from the lower class. Presbyterians were typically of Scottish heritage and from the middle and low classes, while Methodists were from the lower-middle class. In a pioneering society, relatively tolerant both in terms of religious inclinations as well as political ideas, special privileges favouring one church was resented. The continued attempts to secure Anglican dominance over education were thus met with resistance.

### **3.2.2. Private and public schools in Australia**

By 1815 governor Macquarie recognized that the state must assume responsibility for providing free religious and elementary education for the lower class, given the lack of church societies and philanthropics able to provide charity schools. Free, state funded, elementary schools of all the 4 different religious affiliations now existed alongside private, fee-charging, schools. The private schools had sprung up due to the demands of an emerging Australian middle class.

Attempts to ensure Anglican dominance in education continued, until 1829 when failure was finally accepted. At this time, a change in English government brought a new social climate.

The new government also brought a realization that an educational system suitable to a traditional society such as England might not be adequate for the pioneering, Australian, society. The Whigs who had assumed power of government in England believed education was the key to improving society, and furthermore had a tolerant religious policy. State aid to all 4 churches and their elementary schools were thus secured and continued, to "alleviate disadvantages", especially of the poor Catholic church.

Supporting four competing elementary schools was costly and inefficient, and repeated efforts were made to establish a national schooling system in their place. These efforts were resisted by strong religious movements, until 1848, when national elementary schools were established. However, these national schools were meant to provide education in the rural areas only, and co-existed alongside the existing church schools, which continued to receive state funding. The system was thus still expensive and inefficient.

Specific contexts of the Australian society took part in slowing educational progress; there was a continued shortage of labour in the expanding society, which meant that economic or social advancement was less dependent on receiving a formal education. This practical and utilitarian approach proved a fairly stable characteristic of the emerging Australian society. Furthermore, any demand for government officials, lawyers, doctors or clergy was met either through British graduates or through a small number of training facilities or theological colleges. This led to a relatively low value placed on education by the general population.

The 1850's saw a decline in the church schools, which proved inefficient compared to the national, non-denominational, schools. This coincided with the rise of secularism in Australia, which emerged at the same time as the beginnings of a democratic society. In 1855 the New South Wales Constitution Act saw that democracy, in the form of responsible government, was introduced in NSW (NAA, 2010). The new social order brought new requirements to education also, where schools now needed to educate citizens who could provide and parttake in a stable society. Unlike Britain democracy thus preceeded universal elementary education in Australia.

The Roman Catholic church in Australia, largely associated with poor, lower class Irish immigrants, had gradually moved away from an English, upper-class, leadership, and associated increasingly with Irish Catholic hierarchy. The bishops had strong views on

schooling and family life. Foreseeing an inevitable cut in state funding to Catholic schools, the archbishop issued a pastoral letter, which stated that Catholic families had the responsibility to ensure their children received a proper Catholic education. Furthermore, Catholics were encouraged to withdraw their children from public schools, a decree which was adhered to by a significant number of Catholics.

Following arguments over responsibility, the end of the 19th century saw the state assume responsibility for all primary education. Under the slogan "free, compulsory and secular" primary schooling was made compulsory in New South Wales (NSW) in 1880. This policy was not manifested literally, as education was neither free, compulsory or secular in the strictest understanding of the terms. However, this did point to new emerging sentiments in Australia, and changes to education yet to come.

The national schools were henceforth called public schools, and funding for church schools was cut. There was a general anti-Irish and anti-Catholic feeling in NSW, and many of the adherents of the secular movement in education were affiliated with the other churches, resenting the state support of Catholic schools. While some state-aided church schools continued, they became largely indistinguishable from the public schools. General Christian doctrine was taught in all public schools at this stage. Given the relatively weak middle class, the Australian churches were also weak. This with the exception of the Catholic church, which resisted most influences.

Even though most Catholic elementary schools at this stage was denied state aid, the number of independent Catholic schools grew. Funding was mainly obtained through religious orders. Other private institutions, such as the Protestant schools, resorted to charging high attendance fees. Given how some parents might relish the opportunity to sending their children to an exclusive institution, over the years this led certain private institutions to become prestigious schools for the wealthy elite (Potts, 1999). Despite the lack of government support, the private school sector in NSW expanded during the 1880's (Wilkinson, 2008).

The early 20th century saw the formation of the Commonwealth of Australia (1901) with an expanding Australian democracy, and a wave of new reforms in NSW. These were typically not as concerned with religious issues, as with the building of political and social democracy, and the quality of education. The new social order meant the potential for education to

function as a 'social ladder' increased; there was a growth of new professions, and equality of educational opportunity was emphasized through 'the educational ladder' (which was in fact several ladders). Importantly, the "Free education act" (1906) finally abolished fees in public primary schools. The "Bursary endowment act" and the "University amendment act" (both 1912) enabled poor students of high ability to attend secondary school and university through providing bursaries (as a note, a comparable system in Norway did not emerge nationally until the 1950's). Finally, the "Public instruction (amendment) act" (1916) required registration (and thus official inspection) of all private education institutions, and thus at last ensured compulsory education.

While the reforms of the early 20th century increased the access to education, the present humanist curriculum was deemed of little interest. Instead, education providing practical and manual skills was favoured. This demonstrated the emerging Australian spirit, which while sympathetic to the possibility of social advancement through education, deemed "bookish" knowledge to be of little value. This was reflective, of course, of a society where social climbing was not dependent on formal education alone, given the need for labour. It was still possible to get ahead through hard work.

The early 20th century thus saw an Australian society characterized by limited academic aspirations, dominated rather by practicality and utilitarianism. Vocational training was favoured, and most individuals quit school at the minimum age of 14. Simultaneously, equality and educational opportunity was valued. The Australian society was also increasingly dissociated from Britain, demonstrated by the replacement of imperial patriotism by a new Australian patriotism.

The demand for registration had meant a decline in private non-denominational schools, which nearly halved in number in NSW between 1908 and 1918. Meanwhile, the Roman Catholic school system continued to grow. In 1938 18% of the eligible population in NSW attended Catholic schools. In general, the private church schools (of all 4 affiliations) tended to become larger, while the number of non-denominational private schools decreased.

The economic circumstances during the 30's meant a decrease in the interest of education in Australia. While the reforms of the early century had improved the equality of opportunity, the community interest was low. However by the end of the decade, under improving



economic conditions and the seeming threat of fascist and communist ideologies, educational interest was renewed. New reforms increased the minimum school leaving age (from 14 to 15) and a relaxation in entry exam requirements, which made secondary schools more attainable for students of lower ability. The underlying ideology was that the educational system was to become more democratic through extended opportunities.

Meanwhile, the private church-affiliated schools remained largely impervious to the new developments. The Roman Catholic school had by 1939 grown in size and importance to equal the public schools. The Protestant schools were smaller, and also more prestigious; catering to the middle- and upper-classes to a larger degree than the poorer Catholic schools.

During the 1950's there was a tendency students stay on and complete secondary school to an increasing degree. This was brought on by social and economic changes; many adolescents were no longer required to work, and a 'white-collar' middle class was emerging. Entrance into this class required education. Rapidly increasing enrolments meant changes to the whole school structure, while the standards in both primary and secondary schools decreased. The lower quality of education brought concerns not only regarding the academic level of the average student, but that students of higher ability might not be 'stretched to their full potential'.

Until this stage, public secondary schools had remained academically selective. Due to costs as well as increasing demands of a democratic ideology, the metropolitan secondary schools in NSW were made comprehensive; the 'educational ladder' was replaced by the educational 'conveyor belt'. The new system saw an increasing proportion of lower ability students enrolling in secondary schools, and brought on public controversy as well as government concern. Since the 1930's, NSW public schools had provided special classes for gifted children at primary level, while the academically selective secondary schools had catered for their further education. With the introduction of comprehensive schooling, a government concern was for the potential neglect of the 'gifted minority' (SenateSelectCommittee, 1988). In the end, this caused some of the schools to remain partially selective. Simultaneous to changing the educational system to cater for more students attending secondary school, freedom of choice regarding subjects, as well as different ability levels within the subjects was introduced, again to cater for the children of high ability. This led to an increased differentiation across subjects according to student background and ability.

Simultaneously, rapidly increasing enrolments led to a crisis within Roman Catholic schools across Australia. Unable to provide enough teachers through religious orders, the schools found themselves having to hire lay teachers, which together with increased costs for buildings and material led to big financial problems. As such, after nearly 100 years with no government contribution, political pressure from a large catholic population led to a reintroduction of state support to private schools in 1963.

Barcan (1980) argued that the two decades following the second world war saw changes to the educational system in Australia previously unprecedented. Towards the end of the 1960's, Australian society had grown suspicious of traditions, and old bourgeois-Christian values were replaced by a focus on the individual. Relativism was dominant and religion and truth were questioned. During these times, Australian society increasingly looked towards the US, rather than England, and there was a simultaneous shift where education became less a moral or social tool, and more an economic tool.

By now, societal influences also impacted on Roman Catholic church schools. An increasing degree of Catholic students did not attend Catholic school, and the proportion of students attending Catholic schools overall was decreasing. This saw some attempts at modernisation even within the Catholic school system. From 1966 some Catholic schools became co-ed, and certain religious ceremonies were made shorter and more meaningful to primary school students.

The 1960's also saw an increasing concern for the provision of minority students (i.e. migrant, Aboriginal, mentally and physically handicapped and low SES). By the 1970's Australian society had become increasingly diverse, and policy changes had improved the treatment of minorities. Until this stage non-English migrants in schools had largely been 'ignored'; now children were encouraged to be proud of their heritage. There was an increased state focus on integration, for instance through financing of special teachers in ESL (English second language) efforts. At this stage, Aboriginals were included in the census for the first time. Also, special schooling for mentally disabled increased.

The end of the 1970's saw a loss of faith in public institutions, while enrolments in Catholic and other private schools increased. This tendency continued into the 1980's.

### **3.2.3. Present context**

Today Australia is a culturally diverse society of some 21 million people, from more than 200 nations. Approximately 34% of the eligible population attend private schools, the rest government schools (DFAT, 2008). Looking at numbers from 1996 and today, attendance at private institutions is increasing (DFAT, 2008; Potts, 1999). Simultaneously, the number of pupils attending private schools is static or has decreased in comparable countries, where private school attendance was lower in the first place (Potts, 1999).

The right to school choice had a strong position in Australian society, and the private school system is viewed in part as contributing to this universal right. The freedom of choice is one central argument used to why the Australian government should continue to support these schools economically. Built on egalitarian ideals, the government schools have not encouraged differential treatment or academic streaming to the same extent some private schools have. While the educational provision for gifted and talented children has been treated in Australian government policies since 1924 (SenateSelectCommittee, 1988), the implementation of such policies has been unstable, and dependent on the shape of reforms to the public school system at large. The perception that government schools might not provide the best opportunity for high academic achievement is one reason the private school sector, especially the non-catholic elite schools, is valued by some of the well-off middle class as an opportunity to "get ahead" (Potts, 1999).

The Catholic school is the largest private school sector in Australia today, while the non-Catholic private school sector, including elite schools, has been growing (Potts, 1999). Simultaneously, public exclusive schools, providing for gifted and talented children, continues to be a state concern in Australia (DET, 2009; SenateSelectCommittee, 1988). At the same time, reports have demonstrated disparities in achievement levels between students in the country and in the cities in NSW. As such, successive governments have employed a variety of measures to allocate extra resources directed at disadvantaged schools and school areas (DET, 2009; Wilkinson, 2008)

### **3.3.     *Norwegian and Australian schools compared***

The educational systems in Norway and Australia emerged from relatively comparable beginnings. Both were both societies under external government, with their first educational policies established on the basis of this, rather than adapted to local contextual factors.

In both countries, the early schools saw differences in attainment and quality across the population. Furthermore, the situation in the Norwegian and Australian cities was quite similar until around 1800, including free public school for the poor, private schools for the middle class, while the few people of wealthy elite made their own arrangements (i.e. through private tutors or sending their children abroad). During the early years, religious and moral indoctrination of its people were the main concern in both countries.

The churches have been central to the educational efforts in both countries. It might not be coincidental that from a unified Norwegian church, a unified educational system has sprung. Simultaneously, the variety of educational institutions available in Australia seems to directly reflect the variety of religious affiliations within the Australian society.

One of the main differences between the further developments stem from the strength of the Roman Catholic church in Australia. While the age of enlightenment saw a shift away from religious to a more worldly focus in Norway, the Catholic church has remained strong in Australia. The repeated attempts at Anglican dominance have been resisted, and the private school system has been maintained through times with no public funding. A commitment to freedom of choice has remained dominant in Australia, and attempts at introducing ‘discriminatory’ policies in order to reduce social inequalities have frequently been met with resistance. Private institutions, providing for a variety of religious affiliations as well as different academic and social aspirations, exist alongside the public school system, and provide elementary education for a significant proportion of Australian students.

Simultaneously, the main educational debates in Norway concerned the development of the unified school system. Private institutions decreased parallel to the expansion of this system, into an insignificant amount today. The emergence of the unified system in Norway was based on strong ideals of equality; between the countryside and the city, and between people of different rank and profession. While there were some selective elements in schools until 9

years of compulsory education was achieved in 1969, selection has a stronger basis in the Australian than the Norwegian educational system. Today students of a wide range of religious affiliations and ability levels are included within the same Norwegian schools, and, indeed, classrooms. There is a tendency to focus educational efforts and resources on students at the lower and middle end, which has led to concern from critics who argue this system does not cater for students of higher ability, and is to blame for the low scores on international test by Norwegian students relative to students in comparable countries (i.e. the Nordic or the OECD countries).

Educational systems worldwide have been influenced by the developments in market economy and communications over the last few decades. Today, information is shared globally, and far-away contexts might as such influence immediate surroundings. Teachers, as well as other individuals, increasingly access the same information, irrespective of country, including research findings and pedagogical developments. In this context, it is important to note the warning against stereotyping by McNerney (2005), that social research over the last 25 years has rendered less between- than within-group differences. It is possible that cultural contexts will influence the *manifestation* of facts and knowledge to a larger degree than the *assimilation* of knowledge itself.

### **3.4.     *Egalitarianism***

*“The values of egalitarianism are potentially powerfully ambiguous, capable of being pursued in a variety of often contradictory directions.”*

(Kapferer, 2003, p. 18)

The previous chapters have highlighted some similarities and differences between Australian and Norwegian societies. One similarity is apparent in their shared commitment to egalitarian ideals. The above discussions have illustrated how while the governments in both countries display commitments to providing equal opportunities of education for all citizens, their educational systems nevertheless differ in significant ways. Kapferer (2003) has argued that the manifestation of egalitarian values is largely dependent on contextual factors. As such, the Australian and Norwegian contexts seem perfect examples of how egalitarian values are strongly related to wider historical, social and cultural practices in a country. This chapter will

investigate the emergence of specific understandings and manifestations of egalitarianism in the Norwegian and Australian societies.

### **3.4.1. Reducing difference in Norway**

Egalitarianism as a value seems deeply rooted in Norwegian society, attached to an ethos of equality of worth of all citizens, irrespective of geographic, social, economic or other circumstances. Central to Norwegian identity stands the somewhat romanticized ideal of the free farmer, indicating that the true Norwegian-ness is generally considered to reside outside the cities.

Braathe and Ongstad (2001) have argued that the strong position of egalitarian values in Norwegian society influence all Norwegian sub-cultural elements, including the educational system. From early on, Norwegian educational policies focused on the idea and implementation of a unified school system, wherein all citizens should be included, and no students should be left at a disadvantage due to social differences. The political backdrop of the unified school was to promote equality of opportunity for all citizens, as well as to decrease social inequalities.

Gullestad (2006) has argued that egalitarianism in Norway is linked to sameness, where, in order to feel equal, Norwegians need to feel similar. In this view, the reduction of social differences would increase feelings of similarity, and hence, egalitarianism. Commenting on Gullestad, Abram (2008) argued that egalitarianism in Norway has often been over-generalized and over-estimated, not taking into account the diversity of the population, ignoring accounts of conflict, and over-emphasizing sameness. Abram further argued that egalitarianism might at times manifest as nationalism, where sameness in terms of kinship is celebrated, while difference is either avoided or ignored. In terms of the present discussion, a proper investigation into the implementation of egalitarian values in Norwegian society cannot be given due attention. Rather, an investigation into the strive for and commitment to egalitarianism must suffice, as it is demonstrated through educational policies as well as general attitudes within the population.

Attempts to reduce social differences and increase similarity seem to have been the accepted norm in Norwegian society and educational policy since early on. This was demonstrated

through the joint national strive in achieving the unified school, which meant a reduction of parallel school systems, and the inclusion of a diverse student population within the one school system, and indeed, classroom.

The optimism seen in the 1970's (Antikainen, 2006), that education would help reduce social inequalities, has been replaced with the view that schooling might serve to reproduce social stratification. This has led to strengthened efforts to reduce difference (Bakken, 2010), in a system where 'tracking' and other types of special provisions are seen to potentially increase inequalities.

Vislie (2004) discussed the project of 'modernity', and argued that since the beginnings of modern thought (philosophers during the age of enlightenment), a tension has existed between the terms liberty and equality. Vislie further contended that in the history of the Norwegian educational system, equality has taken preference over liberty. Proposals including more freedom of choice to the students have been seen to threaten the unified system, and stopped by the argument that no alternatives (to the unified school) should exist which may lead to increased social stratification. According to this view, a reduction in liberty, in terms of freedom of choice, has generally been acceptable in Norwegian society, in order to achieve increased equality.

The relative absence of a nobility in Norwegian society might be one reason why the implementation of the unified system was not met with more resistance. Reduction of school choice did not generally inflict on the middle and lower class in Norway, for whom the unified school system as a rule led to increased quality and attainment of education. According to European reports, neither official terms nor educational measures exist in relation to children of high ability in Norway (Eurydice, 2006; Mathiesen, Holte, & Mehli, 2006). The potential for all students to develop is emphasized, together with a policy commitment to not classify students in terms of ability levels (Eurydice, 2006).

Presently, the Norwegian unified schooling system has been criticized for a lack of focus and resources on children of higher ability, spurring on projects for students of high academic ability (Dahle, 2008; Mathiesen, Holte, & Mehli, 2006). International tests have demonstrated that Norwegian students' academic level are below those of students in comparable countries (Kjernsli, Lie, Olsen, & Roe, 2007; Lie, Linnakylä, & Roe, 2003; Roe & Solheim, 2007).

What is more, the spread (i.e. the standard deviation) of the Norwegian students' scores in 2006 was larger than in the other Nordic countries (while Finland, which achieved the highest average scores, actually had the lowest spread of scores, too). These results have led to concerns regarding the adequacy of the Norwegian strategy for reducing inequalities in schooling (Kjernsli, Lie, Olsen, & Roe, 2007), public debate regarding the lack of focus on academically highly able students due to 'politically correctness' (Krekling, 2010), and government investigations into how to improve overall student achievement (Kunnskapsdepartementet, 2010).

Antikainen (2006) described how equality of educational opportunity might be seen as related to several factors, such as provision of education, access to education, use of education and educational outcomes. In a *narrow* or *conservative* understanding of the concept, equality of opportunity is achieved when equal access to education is ensured, through for instance adequate policy. In a *broad* or *radical* understanding, equality of opportunity is related to equality of outcome, where different types of interventions, such as extra resources or specific teaching methods, are applied to alleviate disadvantages.

Along the same lines, Hansen (1973) argued that a distinction should be made between formal equality, real equality and consistent equality. In relation to education, formal equality would refer to an equality of access, real equality that educational resources should be available to everyone in equal amounts, and consistent equality that everyone should attain the same outcomes.

According to Antikainen (2006) the Scandinavian countries, including Norway, apply a broad and radical understanding of equality. The commitment to equality of outcomes in education is manifest through special provision afforded socially or otherwise disadvantaged students. Simultaneously, classification according to ability level is discouraged, with an emphasis on the potential growth and academic development of all individuals (Eurydice, 2006). This seems to mirror Norwegian policy efforts to achieve similarity, which is seen as a prerequisite to reducing social inequality (Gullestad, 2006).



### 3.4.2. Maintaining freedom to compete in Australia

In Australia, egalitarian values seem closely related to the specific experiences of a pioneering society. Kapferer (2003) argued that Australia is a society of the state, in the sense that there was no society, no social organization, prior to the state. Thus, social reality has from day one been constructed by the state, and egalitarianism has been one of the ethos central to the construction of Australian identity.

A shared pioneering experience in the new colony led to strong feelings of 'mateship' across and despite class differences, where the image of the master and the servant working side by side in the bush, against the hardship of the new land was of central importance (Hirst, 1989; Kapferer, 2003). In this setting, class differences were not a hindrance to egalitarian ideals, but rather included within them. In the largely homogenous early Australian society, social stratification was applied as an example of the strength of the egalitarian values; equity *despite* difference (Kapferer, 2003). Freedom of opportunity was emphasized; which might be interpreted in the light of a nation of convicts which had achieved the possibility to rise in society.

Hirst (1989) argued that although the Australian labour movement fought to break with the British traditions of advantages of gentry, the movement did not actually fight to abolish gentry itself. While political efforts soon afforded merchants positions as 'Justices of Peace' alongside 'gentlemen' of old family, the deference of such social positions themselves were not questioned or attacked. While the "new world" claimed to break ties with old British hierarchy and class, the migrants that had been suppressed in the old world were too eager to utilize the opportunity of new structures to climb the social ladder, to forget and abolish symbols of worth and status. However, the requirements for entry into such prestigious positions should be lax, granting equal opportunity of membership to all.

Accordingly, it might be argued that egalitarianism in Australia is an equality of *manners*, or, in the words of a colloquial saying; "*Jack is as good as his master*" (Hirst, 1989, p. 74). Consequently, the hierarchical system allowing for the continuation of a social elite was not desired abolished. Rather, an equality of opportunity emerged, where every man had equal rights to compete for differential outcomes (Hirst, 1989; Luke, 1997).

The Australian commitment to maintaining citizens' freedom to choose while also providing equal access to school despite social inequalities is demonstrated by the existence of public schools (which might be seen as a manifestation of egalitarian ideals) alongside private schools (which may be seen as a manifestation of the freedom to choose).

The access to public secondary education was until the middle of the 20<sup>th</sup> century based on academic selection, and the introduction of comprehensive schooling was thus met with resistance. Providing adequate instruction for children of high ability remains a concern within the public educational system today (SenateSelectCommittee, 1988). Gifted education is given a lot of attention in Australia as a field of research and within general society (Gross, 2010), and matters concerning gifted education are included in government policy documents (DET, 2009; SenateCommitteeReports, 2004; SenateSelectCommittee, 1988). Courses directed at student teachers, concerning the identification and specific instructional treatment of gifted students are offered at university (Gross, 2010). Simultaneously, intervention efforts directed towards disadvantaged groups have frequently been deemed 'discriminatory' (Barcan, 1980) and 'favouritism' (Kapferer, 2003).

Kapferer (2003) argued that egalitarianism in the postmodern state might be related to egalitarian individualism, and the celebration of the equal worth of all human beings. Ironically, this can provide grounds for exclusionary practices, and the contention that every man has the equal opportunity to achieve more, become better, and the right not to pay for others, i.e through giving minorities 'unfair advantages' (Kapferer, 2003).

While resting on traditions of equity and egalitarianism, critics have claimed Australia is a divided country, where inequalities are increasing in terms of income distribution and work opportunities (Argy, 2003; Bates, 1992). Furthermore, it has been argued that egalitarianism in Australia has been applied only to certain groups. Non-whites such as aboriginals and non-european migrants were until recent times not included in the Australian society (Thompson, 1994), and there is a big difference between the rich and the poor (Bates, 1992). Along these lines, Bates (1992) argued that the Australian market model of schools, where parents become consumers and only a select few have the riches to choose, might reproduce social class and inequalities, and thus is a means of protecting the middle-class who is only interested in exclusivity or advantage, not in the absolute quality of the education.

In the 1970's there was an attempt by the Labour government to expand the interpretation and manifestation of the Australian egalitarian ideals. *"Education should be the great instrument for the promotion of equality. Under the Liberals it has become a weapon for perpetuating inequality and promoting privilege..."* (Barcan, 1980, p. 387). For the first time, equality was taken to mean 'equality of outcomes', not just opportunity. However, even as the new objectives were put forth, questions concerning the feasibility, and indeed the desirability, of pursuing equality of outcomes were made. It was deemed a very expensive undertaking, and the danger that it might lead to a retardation of students of high ability ('in order to reduce the range of difference') was also noted. In the end the efforts were reduced, emphasizing the goal to bring all children to a basic level of skill, rather than an equalization of their academic outcomes.

Returning to the tension between liberty and equality discussed by Vislie (2004), it seems evident that in Australia, achieving equality at the cost of liberty is not acceptable. Equality is interpreted in narrow, rather than broad terms, meaning equality of opportunity through equal access, rather than equal outcomes.

### **3.5. Summary**

The present chapter has investigated the cultural contexts of education in Australia and Norway, to the extent they are relevant to the current research project. Brief investigations into the history of education in Norway and Australia, respectively (see 3.1 and 3.2), provided the basis for a discussion of the manifestation of egalitarian values in the countries (see 3.4).

It seems the different historical and social backgrounds in Norway and Australia have provided the grounds not only for different educational systems, but different understandings and manifestations of egalitarianism (see 3.4). These differences were originally related to issues of diversity, in terms of religious affiliations, together with central images of national identity born out of social and political contexts.

While Australian society early on included several competing churches, with their respective church schools, Norway had one dominant, state-church, instrumental in the development of public education (see 3.3). Today, education in Australia is characterized by parallel public and private systems, where the private Catholic schools are prominent. Academically

selective schools exist in both the public and the private school sectors, and the fostering of talents is emphasized (see 3.2.3 and 3.4.2). Simultaneously, public schooling remains the largely dominant practice in Norway, based on longstanding ideals regarding a reduction of social inequalities within the ‘*enhetsskole*’ (unified school). In Norway less than half a percentage of the eligible population attend private schools, against roughly one third of the eligible population in Australia. Educational efforts within public schools in Norway are largely directed at mainstreaming, where individualization of students largely happens within the classroom (see 3.1.3 and 3.4.1).

Norwegian national identity includes the romantic ideal of the free farmer, instrumental in the efforts to achieve a national unified educational system, in a country with a high number of scattered settlements (see 3.4.1). Simultaneously, the joint struggle by master and servant against the hardship of the new land, together with a disruption to the British traditions allowing for opportunities of social climbing, meant the emerging society of the ‘new land’ in Australia placed great value on freedom and ‘hard work’ (see 3.4.2). The educational systems as such seem to reflect societal background in the two countries; in Australian society the freedom to choose is emphasized, while reduction of social inequality is emphasized in Norway.

While both countries are committed to egalitarian ideals, these different contexts provide different conditions for the manifestation of said ideals. It seems that while equality is interpreted in a relatively broad and radical way in Norway, meaning equality of outcomes, equality in Australia is interpreted in a more narrow sense, in terms of equality of opportunity, or access. As such, it seems the specific interpretation of egalitarianism require a reduction of difference to a larger degree in Norwegian relative to Australian society (see 3.4.1 and 3.4.2).

The implications related to the different understandings of equality are quite significant; while a *narrow* understanding of equality would imply a government should generally treat all students equally, in terms of school access and resources, a *broad* understanding of the concept would imply the government should not treat the students equally, but allocate more resources to the disadvantaged students (Antikainen, 2006). This seems to be reflected in the public school systems in Norway and Australia. In Norway, resources are geared towards the middle and lower end, while students of high academic ability are not generally considered (Eurydice, 2006). This mirrors the policy of reducing social inequalities in terms of academic

outcomes. In Australian public schools, resources are directed at both the lower and the higher ends, in an effort to reduce inequalities in terms of access to education, while fostering growth of individual talents (DET, 2009; Wilkinson, 2008).

It seems evident that educational policies largely reflect the overarching political aims of the countries. In Norway, a political concern to reduce social inequalities means that a reduction of equality cannot be excused by the desire to increase individual liberty; while the opposite is true for Australia (see 3.4.1 and 3.4.2). In Australia, due to a political emphasis on freedom of choice, a reduction of individual liberty, in order to increase equality, is not acceptable. The differential place of private education in Australia and Norway might as such be seen to exemplify the different understandings and manifestations of egalitarianism in Norway and Australia.

The different manifestations of egalitarianism in Norway and Australia might be exemplified through the differential place of intervention efforts, or ‘positive discrimination’, in the two societies. It seems like difference in Norway is so difficult to contend with, and the welfare state is so established, that a national outcry regarding low international test scores and lack of expertise has not yet allowed for a change of policy in terms of more resources allocated to more able students. At the same time, difference has always been a part of the Australian educational system. The (complete) abolishment of difference is not required; rather, the equality of freedom to compete for difference is upheld. As such, private schools and extra resources to cater for students of high ability are accepted (and to a degree, celebrated) practices.



## 4. Methodology

The present research study was designed to be of mixed methods for several reasons. Given that quantitative design is sometimes accused of being too shallow and not taking into consideration context, and qualitative design might be criticized for its lack of generalizability, a mixed method design might nicely benefit from the strengths of both approaches, while alleviating some of the concerns (Bryman, 2008). Furthermore, it was hoped that findings from either method might add to the analysis and interpretation of the other. Finally, given the concern regarding the uncertain response rate, it was found that a mixed method approach might be prudent. This way the data from neither method would stand alone, but be informed also by the other. In the case of few responses to the questionnaire, the interviews would take a more central role, and vice-versa.

Anticipating that the interviews might motivate unanticipated avenues of investigation, a number of items that were not directly related to the initial hypothesis were included in the online survey. The findings from the interviews might thus inform new avenues of statistical testing of relationships in the online questionnaires, again highlighting an advantage of employing mixed methods.

The project was thus designed to be partially exploratory. While research questions were stated in relation to the online survey and the interviews alike, these were not intended to be static or inhibiting. Unanticipated tendencies (from the interviews) could accordingly inform fruitful avenues for data analysis in relation to the online surveys as well as the interviews.

### 4.1. *Stage one; online survey*

#### 4.1.1. Participants/selection

The participants were 34 primary school teachers in Norway and Australia. Initially, 12 public schools were selected in both countries, based on matching demographics. The schools were matched according to size (between 150 and 500 students attending) and location (rural schools within one half hour travel to a larger city of about 500.000 inhabitants). Care was taken to ensure that the schools selected were comparable in terms of socio-economic status, as far as possible. Of the school areas selected neither were considered especially affluent nor especially impoverished.

In Australia the New South Wales Department of Education and Training 2009 directory (DET, 2009) was used to select schools. Specifically, schools were selected that were not selective in any form (i.e. academic or other performance) and did not qualify for extra transfer points to teachers due to specific conditions, nor allowances due to socio-economic isolation or hot/cold weather (DET, 2009, p. 86). In Norway the website Skoleporten (Utdanningsdirektoratet, 2010) was used to determine the sizes of the schools, while the Statistics Norway website (SSB, 2010a) was used as an indication of the socio-economic status of the areas participating.

Of the 12 Australian primary schools initially selected, only 3 agreed to partaking in the research study. It was quickly evident that this was not a large enough selection, as the researcher monitored the number of online responses. Consequently, the selection of schools was broadened, to increase the probability of a sample of approximately 150 teachers, which was the aim. The same selection criteria was used to select schools, to ensure comparability. Out of 23 additional schools contacted, 8 schools agreed to participate in the research.

In Norway, 6 of the initial schools contacted agreed to participate in the research. The response rate was relatively higher than what was later experienced in the Australian schools, hence no additional schools were contacted.

In the end, 10 teachers in Australia and 24 in Norway responded to the online survey. Out of these, 3 teachers in Australia and 1 in Norway had only completed the very first page on the survey, which consisted of the consent form. Another 3 teachers, 1 in Australia and 2 in Norway, had completed the first two pages of the survey, which included the consent form and the background information. 6 teachers working in Australia and 21 in Norway had completed the whole survey, while the responses from a total of 7 teachers were thus excluded from further analysis.

The relatively high number of teachers who had initiated the survey without completing it indicated technical problems might have arisen. While the type of complications might only be guessed at, implications from this might still be educative. If it is possible, of course, the teachers might have decided they did not want to proceed with the survey. The fact they had all quitted the survey exactly at the end of a page, rather indicated problems related to the loading of the following page, however. While problems of this type were not reported from



any of the pilot respondents, it is possible the online survey program did not load easily on all computers. Other, unknown, technical issues might have stemmed from firewalls or other security programs, hindering access to the webpage.

The access to computers with internet connections at the schools, as well as teachers' general familiarity with completing surveys online, might also have been overestimated. It is possible issues surrounding computer know-how had deterred some teachers from responding to the survey. Given the complications some teachers evidently experienced filling out the surveys, it is also possible teachers might have experienced problems loading the webpage itself, and thus given up. These considerations point to the question of whether postal surveys, as compared to online surveys, might not be a more reliable instrument in terms of response rates, under some circumstances. The superior adequacy of one form over another is likely to be context specific, especially in relation to the participant characteristics. Given the disparity of the present participants in terms of both age and cultural backgrounds, a postal questionnaire might have resulted in more predictable response rates. In any case, it is certain that participants do not possess unlimited amounts of patience regarding responding to surveys, and the time required plus the ease with which the surveys might be completed will be key to the rate of response.

#### **4.1.2. Instrument**

The questionnaire consisted of two parts; the first part intended to gather participant background information, while the second part was designed to measure beliefs about the modifiability of intelligence. Two versions; one in English (appendix 8.7) and one in Norwegian (appendix 8.8), were created. (For ease of clarity, all further references, unless otherwise stated, will here refer to the English version.) The questionnaires were proof-read by professors in education and psychology at the University of Oslo, Norway, and each version was piloted by primary school teachers in Norway and Australia, respectively.

The first part of the questionnaire was designed to provide participant contextual information. Items 2-11 covered demographical information such as age, gender, upbringing and educational and professional backgrounds. Items 12-14 asked the participants to indicate how the school they worked at and the students they primarily taught compared to other schools and students in terms of academic performance, in their own view. They were asked to which

degree this was a matter of opinion or whether their view was backed up by empirical results such as test-scores. Items 2-14 were all deemed to be of high face validity, in that the questions were openly stated, and reflected the underlying motivation behind the items to a high degree. Furthermore, they were deemed to be relatively un-obtrusive, and thus unlikely to elicit honest, straight-forwards responses.

Item 15 was intended to measure the participants' sense of "cultural belonging". Four statements were provided (example; "I consider myself an average and typical Australian citizen"), and the teachers were asked to indicate on a 5-point Likert scale to which degree the statements were true to them (1= Not at all true to me, 5= Completely true to me). The statements were intended to give some indication as to whether the participants felt affinity with the general culture within which they lived and worked. Item number 15 was designed for the purpose of the present questionnaire, and hence not previously tested. Consequently, care must be taken when reading the results from this item. The statements provided in item number 15 were tested for reliability, and found to achieve a Cronbach's Alpha of .91. While this indicates that responses to the different statements of the item were related to the same concept, the exact understanding of this concept by each individual cannot be asserted. The terms "culture" and "Australian"/"Norwegian" might be understood and applied very differently from one person to another, thus one reservation must be that participants are likely to respond to the term "cultural belonging" according to their own definition of the concept, which might not coincide with the definition of the other participating teachers, or with the researcher.

Part two of the questionnaire was based on the Conception of Intelligence Scale (CIS) developed by Bråten and Olaussen (Bråten & Olaussen, 1998) as well as items measuring beliefs about intelligence constructed by Dweck (Dweck, 2008). The CIS was initially constructed through presenting 70 Norwegian teacher students with 60 behaviors associated with intelligence. These 60 items stemmed from an earlier study by Sternberg, Conway, Ketron, and Bernstein (1981, in Bråten and Olaussen, 1998) regarding laypersons' and experts' characterization of behaviors associated with ideally intelligent people. The 13 items subsequently included in the CIS by Bråten and Olaussen were the items which received the highest average scores when the teacher training students were asked to rate how typical they thought each behavior was of an intelligent person on a 5-point Likert scale. It is thus important to note that the items were selected according to laypersons' characterization of

intelligent behavior, and were not intended to break down or represent the construct of intelligence in any other way.

In their study of the impact of beliefs on learning strategy use, Bråten and Olaussen (1998) asked the participants to indicate on a 5-point Likert scale to which degree they considered each item in the CIS could be further developed (1= can be further developed to a very little extent, 5= can be further developed to a very large extent). After responding to the 13 first items, participants were asked directly to what extent they thought "intelligence" could be further developed. The items were thus arranged so the researchers might see if probing participants' beliefs about the modifiability of intelligence would produce different results when the items were termed "human characteristics" (thus probing for implicit beliefs about intelligence) to when the term "intelligence" was explicitly applied. This is in line with the implications from research investigating beliefs; people may hold several conflicting beliefs at the one time (Pajares, 1992), and beliefs may be either explicit or implicit (see 2.1.1).

The last part of the questionnaire was adopted from Dweck's book about self-theories (Dweck, 2008). Dweck has conducted extensive research on the self-theories of both children and adults. Her original instrument was intended to measure adults' beliefs about personal intelligence (example; "You have a certain amount of intelligence, and you can't really do much to change it."). Instructions were given on how to change these statements to concern beliefs about intelligence in general (example; "People have a certain amount of intelligence, and they can't really do much to change it."), which was more adequate for this research. 8 statements, 4 of them positive and 4 of them negative, were given concerning the modifiability of intelligence, meant to measure whether the respondents held incremental or entity views. Participant instructions were given which indicated that there were no right or wrong answers; rather, the researchers were interested in the view of the participants. They were further asked to indicate on a 6 point Likert scale (1= Strongly agree, 6= Strongly disagree) to which degree they agreed or disagreed with the statements.

In order to increase the comparability of the responses from the CIS with the responses from Dweck's instrument, the 5 point Likert scale originally applied with the CIS was changed, and one additional possible response was added. This was "1= Cannot be further developed". It was perceived that reducing the number of possible responses to Dweck's instrument would interfere with the internal reliability of the instrument to a larger degree than adding one item

to the CIS. Furthermore, it was felt that there might be certain advantages to a 6-point scale over a 5-point one, namely that respondents have to "choose a side" and cannot remain non-committal by selecting a middle option.

In the original research committed by Bråten and Olaussen (Bråten & Olaussen, 1998) the researchers reported the 13 first items on the CIS had achieved a reliability score (Cronbach's Alpha) of .84. In the present study, responses to the 13 first items of the CIS achieved a Cronbach's Alpha of .85, and the mean average score was comparable to that of Bråten and Olaussen, once adjusted for the extra item. This indicated that providing one extra response option to the CIS had not interfered unduly with the reliability of the measure. Responses to the instrument by Dweck were also found to have high internal reliability in the present study, with a Cronbach's Alpha of .95. Thus both of the instruments applied to measure teachers' beliefs about intelligence seemed to be reliable, in terms of the internal reliability of the multiple indicators applied. In relation to the stability of the measures, the mean scores on the CIS seemed largely comparable to those achieved previously by Bråten and Olaussen. According to Dweck (2008) her instrument measuring implicit beliefs about intelligence has been applied extensively in research, and undergone thorough testing in terms of both reliability and validity.

The pilot studies run in Norway and Australia consisted of an online questionnaire similar to the one intended for the "real" study, with 6 additional questions asking for feedback regarding the research instrument as well as the whole process undertaken in filling it out. Participants for the pilot tests were either currently working as teachers, had worked previously as teachers, or were otherwise considered to have a thorough knowledge of the teaching practices in either Norway or NSW. In the end, 5 responses were received in the Norwegian pilot, and 4 in the Australian. Out of these, 3 Norwegian pilot participants and 2 Australian ones had filled out additional comments. The pilot responses generally indicated the participants were satisfied with the questionnaire, had understood all the questions, and had no specific criticisms. However, some of the comments provided assistance as to the design of some of the background items, which led to the change of these items accordingly. Such comments were helpful particularly in relation to question number 7, in terms of identifying adequate response options regarding the teachers' educational backgrounds in Australia.

In addition to feedback on the adequacy and meaningfulness of the items themselves, it was of special interest whether the pilot participants had experienced difficulty locating and/or completing the surveys. In this respect the pilot participants were asked how they had navigated to the survey (through clicking on the link in the attachment to the email, or typing in the address in the browser directly), as well as to comment on any difficulties they might have had with locating and/or completing the survey. None of the pilot participants reported experiencing any difficulties with either.

#### **4.1.3. Procedure**

An online survey tool (ProblemFree.co.UK, 2010) was used to design and host the questionnaire. The online mode of the questionnaire was deemed to have several advantages over competing modes of distribution; it was relatively cheap (a monthly fee was paid to the survey host) and also easy to make and distribute. These were important points considering the questionnaire would be distributed in both Norway and Australia, and a postal questionnaire would make for issues with both speed and prize of delivery of the questionnaire, as well as return of the data. The online mode would also ensure teachers' responses could not be influenced by researchers' characteristics or behavior.

While self-completion questionnaires may tend to be associated with a number of problems (Bryman, 2008, p. 218 and 650), it was hoped that the nature of the online questionnaire would alleviate some of these concerns. A "normal" postal questionnaire can be read as a whole, thus giving rise to the problem of question order. This questionnaire was organized on 3 subsequent pages; respondents could not navigate to the following page before all required items on the current page were answered, and once they had moved to the next page, they could not navigate to any of the previous pages. While participants could still read and answer the items on each page in the order they wished, they were not able to look at items that were organized according to a different theme, and thus, page.

A possible disadvantage to the self-completion, and also online questionnaire, is the lack of control on the researcher's side over who responds to the questionnaire. It was felt that the advantage of this, namely full participant confidentiality, outweighed the potential risk of the teachers distributing the web-site address to people unrelated to the research.

Each participating school/principal received a Letter of information (appendices 8.3 and 8.4), asking the administrative staff to pass on an attached Participant Information letter (appendices 8.5 and 8.6) to the teachers in question. The letter included information regarding the study as well as directions as to how to locate the online survey. Thus, the researcher never required email addresses nor other means of contact with the teachers. Considering the website did not allow researchers access to respondents' IP addresses, full respondent confidentiality was ensured for the survey participants. Teachers in one of the 12 Australian schools initially contacted wrote to the researcher to report they were unable to access the webpage of the online survey through the link incorporated in the Participant Information letter. As a consequence of this, the word document was transformed into and replaced by a PDF file, which was sent to all schools subsequently contacted.

To avoid the necessity of separate consent forms, which would require a lot of administrative work on the side of the schools, as well as/or potential access to teachers' addresses on the side of the researched, the very first page of the questionnaire worked as a consent form. It repeated basic information about the questionnaire already given in the Participant Information letter; that participants' confidentiality would be respected, and that participation was voluntary. The teachers subsequently had to respond to a question of whether they consented to partaking in the research, and the information gathered through the questionnaire being used for research purposes. Only if they confirmed this were they able to navigate to the following pages of the questionnaire.

Finally, the question of response rate was considered. Given the relatively infant stage of online questionnaires, it was uncertain which effect the online mode would have on the rate of response. According to Bryman (2008, p. 649) web surveys may result in higher response rates compared to postal questionnaires. At the same time, self completion questionnaires in general tend to produce lower response rates than other types of data collection, such as interviews. These concerns influenced the decision to go with a mixed-methods design, where the research would be informed by face-to-face interviews as well as the online questionnaire, and thus not be solely reliant on the somewhat uncertain response rate to the questionnaire.

#### **4.1.4. Analysis**

Due to low response rate the data from the online survey did not lend itself to rigorous statistical testing. Thus a careful exploration of the data was implemented, where trends and tendencies were noted. Visual examination of the data was one strategy that was regularly applied, to note the distribution of responses in the two countries, as well as consistencies and inconsistencies among the participants' individual responses.

In terms of the data from the CIS, the initial 13 items were first considered, in terms of the distribution of responses according to participants' country. Major trends in terms of commonalities as well as differences were noted. The mean scores from these 13 items were also considered, in line with the analysis conducted by Bråten and Olaussen in the original application of the survey (1998). Responses from the 14th item, concerning intelligence, were considered separately from the first 13, in the same manner; noting major trends.

Data from Dweck's 8 items were considered in a similar manner. First, major trends were noted, and similarities as well as differences between the countries were explored. The mean score from these items were also considered. While the CIS in the original application contained 5 statements, this was changed to 6 statements in the present study, to allow for easier combination and comparison with Dweck's items (see 4.1.2). Thus, mean scores from the 13 first items from the CIS, from the 14th item, as well as from Dweck's 8 items, were tentatively compared.

While the survey data was not applicable in the intended manner, as a rigorous statistical basis which could be backed up by some interesting contextual data, it did in the end serve a useful and interesting function to provide certain tendencies. These were applied in terms of backing up qualitative findings from the interview, rather than the intended, reverse function.

## **4.2.      *Stage two; interviews***

### **4.2.1. Participants/selection**

The participants were 16 primary school teachers in Norway and Australia. Interviewees were initially intended to come from the same selection of 12 schools in Norway and 12 in Australia. At the end of the online questionnaire the participants were invited to contact the

researcher if they were interested in doing an interview. This way full confidentiality of the survey participants was ensured, as the researcher did not require the contact details of any teachers. Rather, the teachers that were already interested in partaking in an interview should contact the researcher for further information and/or to set up the interview. This procedure turned out to be overly optimistic, and an obvious weakness was the dependency on the online survey to obtain interview participants. Given both the low number of schools agreeing to participate and the low response rate amongst the teachers working at these schools, not as many teachers completed the online questionnaire as expected. Out of the online respondents, only one teacher in Norway contacted the researcher to set up an interview, while none did in Australia. Considering the low response rate to the questionnaires obtaining interview data was deemed especially pertinent. Accordingly, alternate methods of inviting interview participants were employed.

Given the initial method of inviting teachers through schools that were carefully matched was not successful, the matching requirements were loosened in order to obtain a minimum number of interview participants. Subsequently, teachers were interviewed that worked at schools which did not match these early requirements. In the end, 8 interviews in Norway and 8 in Australia were completed. All but one interviewee were reached through friends or acquaintances of the researcher.

6 of the Australian teachers worked at the same school, and the same was true for 4 of the Norwegian teachers. It is thus interesting to have a brief look at these two, main, schools.

The Australian school was quite large (more than 700 students), situated in a rural, "blue collar" worker, area, largely populated by well-to-do farmers, builders and so on. It was not considered to be poor, but not traditionally very academic, either. The principal was a former researcher and very positive to research, who worked as a mediator between the researcher and the participants. It is possible this might have skewed the selection of interview participants in the school, given that the principal is likely to have selected participants due to his judgment of whether they might provide worthwhile or representative responses, rather than a more random approach. While the school had been rebuilt and renamed about 4 years ago, several of the teachers had been at the "same" school for a very long time, and it was very much a community school.



The Norwegian school was not as large (about 360 students), situated in a suburban, relatively affluent municipality, but in an area with a high percentage of migrants and foreign language speakers. This seemed to be mirrored in the school, as it had the highest percentage of foreign language speaking students in the area. The area had a troublesome recent history, including a "gang" killing amongst young, migrant boys a few years back. It was further characterized by two rather disparate areas, one populated by a large number of migrants, generally living in highrisers, the other largely populated by well-to-do ethnic Norwegian middle class, generally living in villas. These areas had originally been catered for by two separate schools, but had in the last couple of years been joined together. All children in the catchment area now attended the same school, which had been a much debated issue. The hallways of this school were lined with 'multiple intelligence' charts, related to Gardner's theories (1983). In this school, contact with interview participants was mediated by a staff member, herself a teacher at the school. She did not par-take in an interview herself. The sample as such might have been influenced by the relationship between this teacher and her colleagues, in terms of who were approached, as well as their willingness to participate.

The last two interview participants in Australia were both young teachers who had worked for less than 5 years. They were reached through friends of the researcher. One teacher worked at a larger school of more than 900 students in the inner west of a large city. This is considered to be an area of low socio-economic-status (SES) (NSWTeachersFederation, 2002, p. 18). Another teacher worked at an inner-city school of approximately 140 students. This area is considered to be of middle to high SES. Furthermore, a large number of the staff at this school, including the principal, had experiences working in selective, gifted schools.

Of the last four Norwegian interview participants, three of them worked in medium-sized schools within or surrounding a larger city, although not in the inner-city. Like the Norwegian school described above, a focus on multiple intelligences was evident at one of these schools.

The last Norwegian interview participant was the only teacher during the entire study who volunteered to participate in an interview, on the background of having completed the survey. This teacher worked at a 1-10 school, meaning it included both primary and secondary school, with grades 1-5 and 6-10 separated and located in different buildings. This school was of medium size (about 500 students) and located in one of the municipalities included in the online surveys. As such it was regarded as average in terms of socio-economic status.

### **4.2.2. Instrument**

The interviews were semi-structured, and two interview guides, one in English (appendix 8.9) and one in Norwegian (appendix 8.10), were designed for the purposes of this research. The interviews were designed to investigate the same issues of teachers' beliefs probed in the online questionnaires, but also to go beyond these and explore the origins of the teachers' beliefs, as well as having the teachers themselves reflect upon their own beliefs.

The interview guides were roughly organized according to 5 themes of interest to the researcher, in addition to the general "warm up" questions such as age and years in the job. The themes were "cultural background", in other words to which extent the teachers felt affinity with the general culture in the country in which they lived and taught, "beliefs about intelligence", basically whether they had an incremental or entity view of student intelligence and learning, "teaching experiences" which concerned personal experiences to exemplify and illustrate their beliefs, "reflections on own beliefs" where the teachers were encouraged to investigate explicitly what their beliefs were, and finally "reflections around influences on beliefs" where they were encouraged to decide what in their lives they thought might have had the greatest influence on their own beliefs. The interview guides consisted of a total number of 32 items.

Both interview guides were proof-read and checked for consistency across the two languages by a professor in Education, as well as individuals proficient in English and Norwegian both.

### **4.2.3. Procedure**

In the initial communication with the teachers – usually per email – a venue was decided upon according to the preference of the teachers. In the case of the six teachers working at the same school in Australia, the initial communication was with the principal, not the individual teachers. The interview was often in a meeting room of their respective schools, and in one or two interviews at the teachers' homes. While it was advertised that the interviews should take approximately one hour, this depended a lot on the individual teacher; how much time they had available, how interested they were, and how much they felt like sharing. Thus the shortest interview, which took place in a teachers' car driving home from work, lasted less than 20 minutes, while the longest interview, taking place in the home of one of the teachers, took nearly one hour and a half.

While an interview guide (appendices 8.9 and 8.10) was used, this was rarely followed in a strict sense. The responses from the interviewees largely determined to which degree and in which manner this guide was followed, and to a certain extent directed the order of the questions asked. The guide was as such rather applied as a tool for memory, in terms of not wandering too far 'off track'. It was attempted to keep the interviews low-key and conversational, to maintain an unthreatening atmosphere and create a feeling of ease. The researcher was engaged, attempted to encourage the teachers to explore their beliefs, and would respond to questions, although trying to refrain from disclosing any opinions that might sway the answers of the teachers. Nevertheless, it is impossible to say to what degree participants might have been swayed in their responses based on the gender, ethnicity and demeanor of the interviewer (Bryman, 2008). It should be noted that all interviewees were white, seemingly middle-classed, and well-educated.

The interviews contained elements that can be compared with aspects of an oral history interview (Bryman, 2008). This in terms of how the teachers were asked to reflect upon certain aspects of their lives; specifically relating to their experiences as a teacher. Three stages of their lives were explored; their experiences in the classroom as a professional, their experiences in the classroom as a student (both during school-years and later during teacher education) and their experiences growing up. Towards the end of the interview, teachers were encouraged to reflect upon how these experiences might have influenced their present educational beliefs, as they had been discussed during the interview. Another major feature of the interviews was the interviewee-researcher interaction that took place during certain stages of the interviews. The researcher openly summarized the interviewee's beliefs about intelligence, to check for agreement, and when appropriate encouraged teachers to reflect upon seeming inconsistencies. The interviews were conducted in a relatively open manner; while a small number of questions were designed in a manner that they might covertly investigate the relationship between teachers' beliefs and their actions, many questions were straightforward and high in face validity. Furthermore, towards the end the interviewees were invited to reflect upon their own beliefs as well as the influences on their beliefs. Thus by summarizing and providing hints and cues, the researcher was very much a part of the interview process during certain stages, to a lesser or larger degree depending on the characteristics of each interview participant. During several of the interviews the topic of politically correct beliefs was also breached. This illuminated the specific researcher-interviewee relationship, placing the role of the researcher in the 'limelight' (Bryman, 2008).

Prior to the interviews, the researcher investigated her own personal beliefs on the themes covered in the interviews. This was done in an attempt to increase awareness of potential prejudices and avoid imparting these on the teachers, whether explicitly or implicitly. A strong belief in the impact of the environment on the development of children, and thus a feeling that intelligence and many other capacities are, to a large degree, modifiable, was ascertained. It is likely that studies of and research in educational psychology, specifically the Cognitive Load Theory, which places much emphasis on the role of experience and training, have had a decisive impact on these beliefs. Simultaneously, studies concerning the "Gifted and Talented" (undertaken in parallel to the initial courses in Educational Psychology) might have served to create a prejudice against the premise that a certain percentage of the population is born gifted, and the identification and differential treatment of children thus identified. Finally, believing that the expectations of teachers can strongly impact the children they teach, the researcher identified a subsequent negative attitude towards teachers' differential expectations of childrens' performance based on the selective identification of certain "gifted" children. It was hoped that through the identification of these potential prejudices the researcher could carry out the interviews in a balanced fashion, maintaining a positive attitude and providing encouraging responses to the participants' statements, regardless of personal beliefs.

#### **4.2.4. Analysis**

As discussed, the interviews were designed to provide teachers with ample opportunity to contribute information, and thus in an exploratory approach. According to this, and in order not to lose valuable contextual information, an approach to analysis resembling Framework (Bryman, 2008) was applied.

Interview responses were first written into a matrix, organized according to respondents (rows) and the questions in the interview guide (columns). While the question order was often changed from one interview to the next, and indeed not all questions were asked/responded to in every interview, in the matrix the columns were organized according to themes, so that the general attitude towards a certain theme could be drawn from responses to one or several questions relating to the same theme. In addition to a few general background questions used as a "warm up", the questions were organized according to 5 themes; cultural belonging, concept of intelligence, concept of giftedness, examples from classroom experiences,

reflection upon beliefs, and reflection upon influences on beliefs. At the end of each theme an extra column was inserted to allow for a synthesis of the responses relating to the same theme. Two rows were provided for each interview respondent, and two columns were set aside for each question. For each question, in the higher row the researcher first stated the teacher's response (top left box), and then interpreted this response (top right box), while boxes in the row below were used to provide direct quotes for illustration (bottom left box), or interviewer notes (bottom right box). For each participant response, in either row, a reference was made to the correlating point of time in the interview.

While a few of the interviews were transcribed verbatim before responses were written into the matrix, it was decided that time restraints rendered the continuation of this procedure difficult. Subsequently, most of the interview responses were applied to the matrix directly, while listening and relistening to the recordings. This procedure might not be optimal in terms of ease of reference to interview responses, but it was felt that the closeness to the data during interpretation of responses was beneficial. A written transcript does not relate nuances in terms of emphases, stress, speed and tone of voice as well as an audio recording, which to a larger degree "brings you back", and also allows for a sensation of general mood and atmosphere. Auditory cues might also enable the researcher to reconstruct the event of the interview more accurately, providing additional, contextual data such as the recollection of visual cues of behavior indicating interviewee stress or calm. Contextual data such as time and place of interview, interviewee characteristics and behavior and other contextual information was noted down either during or directly following the interviews.

As described above, in the matrix of responses there were generally four "boxes" relating to each question/issue; two for participants' replies (at times implicitly derived at by the researcher) and direct quotations, and two for researcher's summary and notes. The original intent with this design was that having the 'synthesized' interpretation by the researcher would be useful. However, throughout the treatment of the data for the report, the synthesized views were used less and less. Increasingly, the researcher found herself going back to the original sources (soundfiles) of the interviews for richer, contextually placed, data. Also, given that the research themes and points of inquiry developed throughout the process, the synthesized views were not always applicable or relevant to the issue at hand. Retrospectively, it might have been advantageous to leave more space for direct quotations, and possibly leaving one square empty for later insights/revelations.

The interview data in the matrix was generally examined question by question, in a vertical manner (two corresponding columns at the time), investigating the replies from all respondents in the case of each question. Given that the interviews were never conducted in an identical fashion, the degree to which each question was explicitly stated and/or responded to varied a great deal. In some cases explicit responses/statements given at other times during the interviews served to answer the question adequately, at other times the participant's opinion was derived by the interviewer more implicitly through several statements.

The interview responses are presented in the results chapter (see 5.2). For each question a main tendency, if present, has been described, followed by a few illustrating quotations, generally presented separately from the main text. Subsequently, the exception(s) to the main tendency/ies were described, with the accompanying quotations generally within the text. The length and depth of these quotations varied greatly, from teacher to teacher as well as across each interview, as might be expected. This is related to the participants' different manners of expression; while some teachers spoke in a straight-forward manner and was to the point, others were a little more vague and lengthy. At times, it was felt that several statements from the same teacher was necessary to illustrate a point in a meaningful way.

Generally, when several citations were given, their order mirrored that of the corresponding text. When there was no apparant order in the text, and citations of both Norwegian and Australian teachers were given, the order of the citations would follow that of the interview matrix; the Australian teachers first, followed by the Norwegian teachers.

It was attempted to keep the teachers' statements in their original forms, as far as possible, hoping that this might convey the teachers' intentions to a more accurate degree. Quotations were thus generally noted down verbatim, the researcher refraining from correcting grammatical errors or mispronunciations, so far as they did not interfere with the general meaning of the statement. Slang or colloquialisms were also kept in their original form. As far as the different Norwegian dialects go, it was attempted to keep the citations as close to their original forms as possible. (It should be noted that the researcher, while in possession of a superficial knowledge of various Norwegian dialects, is not proficient in any except the standard "bokmål" spoken around Oslo. As such, no claims can be made as to the accuracy of the spelling of words specific to other dialects. This is also true in terms of Australian

colloquialisms or unusual slang; while fairly familiar with the type of English spoken in NSW, no claims can be made as to the accuracy of the spelling of such words.)

Translating the Norwegian quotations into English turned into a balancing act. With the dual goals of keeping the participants' original intent as far as possible while also making translations coherent and understandable, the Norwegian teachers' responses were generally translated as directly as possible, without the loss of meaning.

In the instances where teachers' responses (Australian or Norwegian) were incomplete to the degree that meaning was lost, the word(s) necessary for clear comprehension of the statement was added in [brackets] within the citation. In the instances where teachers provided lengthy responses containing statements which were not relevant to the issue at hand, these sections were not included in the citations. The cut-out sections were indicated by brackets, in the following manner (...). At times, this was also employed for sections where teachers seemed uncertain, or gathered their thoughts, using either incomplete words, or many non-sensical words, such as "ahm, uhm, eh, you know, well, kinda..." in a row.

As mentioned, an interview guide was used to ease the interview process (see appendices 8.9 and 8.10). The exception was the eighth interview in Australia, which was unplanned and took place in a car. When the initially casual conversation took a turn towards the issues covered in the interviews, the teacher consented to the recording device being turned on, and the researcher from then on conducted the interview to the best of her memory. As such, the interview guide was not followed, and many of the questions in the interview guide were not asked in an explicit manner. The teacher was very informative, however, and provided a lot of rich, contextual data. While the lack of explicit responses for many questions was unfortunate, this teachers' beliefs could to a degree be "guessed at" from general responses and comments. It was felt that the information derived from the interview was interesting to the extent that it was included in the research, and used in the analysis. It is important to note, however, in terms of quantification of the responses, that this teacher did not respond to all the questions, and that the teacher's beliefs were, to some degree, derived at implicitly from general comments and statements.

For the purpose of maintaining confidentiality, all names of participants and participants' schools were changed, including switching the gender of some of the teachers. The

Norwegian teachers' names were replaced with decidedly Norwegian names (Ulf, Bjørn, Stein, Tove, Solveig, Line, Kari and Hedda), while the Australian teachers were given more English sounding names (Dave, James, Rob, Christina, Sophie, Victoria, Alice and Gwen), for ease of reference in the results and discussion chapter.

The interview data was quantified to a certain degree; to allow for the identification of main themes, to recognize patterns and variations in the teachers' replies, and look for potential differences in the replies by teachers in Australia and Norway. This was done through noting how many teachers in the prospective countries held corresponding beliefs, as indicated through their responses. The following general guide was used to ensure consistency between the terms applied and the number of teachers referred to. The alternative numbers noted below (i.e. 13-14/15 teachers) refer to whether the total respondents to the particular question were 15 or 16, depending on whether the eighth participant in Australia was considered included or not.

0 teachers	= none
2 teachers	= some
3-4 teachers	= a few
5-6 teachers	= several
7-8 teachers	= many
9-12 teachers	= most
13-14/15 teachers	= nearly all
15/16 teachers	= all

During the process of analysis, one emerging concern of the researcher was that of maintaining balance between a meaningful, coherent presentation while preserving the richness and depth of the data. While it was felt that quantification was valuable, and possibly necessary, in order to make sense of the responses, there were also concerns regarding the seeming inevitable loss of contextual data through such a method. Special concern was related to whether teachers' responses might in this manner seem unattached to their other responses or appear out of context, and whether any emerging tendencies or inconsistencies would be difficult for the reader to follow.



In the end, the concerns were settled and a seeming balance struck: Whenever adequate, frequent references were made to teachers' earlier, related beliefs, and the interrelatedness of specific beliefs were often pointed out. Furthermore, given that one emerging tendency detected was that of the interrelatedness between teachers' beliefs and their life stories, a short synthesis of the life stories, as they appeared through the interviews, of a select few teachers were put together (see appendix 8.2). Hopefully, these strategies contributed to preserving a contextual frame for understanding the teachers' beliefs.

The issue of life stories is related to narrative research. While the interview guide was not constructed nor intended for this, several of the questions lent themselves to this approach, and generated narrative replies (see 4.2.3 above). Several of the teachers provided rich accounts of their lives and experiences, as they related to the development of their present beliefs. It was thus deemed interesting to briefly investigate the responses by these teachers in view of narrative analysis. An overview of this is presented in 5.2.11, while appendix 8.2 provides more extensive accounts of three teachers' life stories, as they appeared to be related to their beliefs about intelligence.

### **4.3. *Methodological concerns***

Drawing on the previous chapters, methodological concerns, as they are related to the issues of reliability, validity, and generalizability, will receive a brief discussion in the following sections.

#### **4.3.1. Reliability**

The survey instruments deriving from previous research (i.e. the CIS items and Dweck's instrument) appeared to be both stable and of high internal reliability (see 4.1.2). While the first section of the online survey contained items invented for the present project, most of these contained straightforward questions. One item, question number 15, was more complex, but appeared to be of high internal reliability (see 4.1.2).

In terms of the interviews, the interview guide was one means of ensuring a degree of reliability. However, the nature of interviewing makes it hard to determine to which degree the presence of the interviewer might have influenced the participants' responses in any

significant way. Care was taken not to lead the interviewees or otherwise sway their responses. Through a process of making explicit and considering her own potential biases prior to the interviews, the researcher attempted to minimize the impact of her personal beliefs (see 4.2.3). However, a completely objective interviewer does not exist, and the interviewer's mere presence in the room will influence the results to some extent. Accordingly, an active attempt at creating a non-threatening and supportive environment was emphasized, where teachers might feel at ease discussing their personal beliefs, even if they should somehow perceive these to be at odds with the beliefs of the researcher, or with what was deemed 'politically correct' (Bryman, 2008, p. 255).

One of the interview participants explicitly stated he at one stage felt persuaded to give responses tending towards a certain direction, even though he reckoned these responses were at odds with his 'actual' beliefs. While it is possible this feeling was related to issues concerning belief dissonance (see 5.2.10), the presence of an interviewer effect cannot be ruled out.

#### **4.3.2. Validity**

In terms of the online survey, the question of validity is highly relevant. Focusing on the items related to teachers' beliefs about intelligence, these items differed in explicitness, or, in this context, face validity. While the 13 first items on the CIS were implicitly related to intelligence, the 14th item as well as Dweck's 8 items were all high in explicitness, in that they stated the term 'intelligence' directly. In previous research findings by Bråten and Olaussen (1998) differences in explicitness were discussed in regards to whether the items measured personal, or 'textbook', beliefs. As will be discussed in chapter 6.1.1, similar tendencies emerged from the present study. As such, it is possible that the items differing in explicitness did not measure the same things.

In relation to the interviews, one apparent weakness of the present study was the lack of any objective measures to gauge the relationship between participants' statements and their actual, classroom behavior. As such, we cannot be certain that teachers' responses to belief items were valid representations of their associated teaching behaviors. Limitations in terms of time and resources of the present project meant participant observation was not viable. As such, care must be noted in terms of the interpretation of teachers' belief statements. Research has

demonstrated that the relationship between teachers' beliefs and teachers' behaviors is highly complex in nature (see 2.3.3), and straightforward predictions regarding behavior cannot be made with any degree of accuracy without knowledge of contextual factors as well as related beliefs.

#### **4.3.3. Generalizability**

The main weaknesses of the present project are related to issues regarding sample size. The online survey generated an unexpectedly low number of participants, especially in the Australian sample. While the online survey was deemed practical for the researcher and also to be of minimum disruption to the teacher, it is possible that a postal questionnaire might have rendered a more predictable rate of responses.

As the low response rate quickly became apparent, the list of schools initially selected in Australia was expanded in an attempt to achieve more responses. This inflicted on the participant selection method, but was not deemed very problematic, given that similar selection criteria were employed as for the initially identified schools. However, in both countries the low number of participants in the online survey had a deciding effect on the selection of interview participants.

The design of the study meant that the number of interview participants was dependent on the number of survey respondents. Retrospectively, this turned out to be a weakness of the design, as the low number of survey participants led to an extremely low number of teachers volunteering for interviews (one teacher overall). Furthermore, while the interview participants were initially intended to be a random sample, selected from the survey participants who expressed interest in partaking in an interview, in the end it became a snowball sample, which meant the participating teachers did not necessarily share the same contextual factors in terms of school characteristics. Given the qualitative nature of the interviews this might not be critical, as the interviews were intended as rich data, providing contextual information that could in any case not be generalized beyond the participating teachers.

As it is, the data included in the project is clearly limited in terms of generalizability. Results and tendencies do not necessarily apply to populations other than the participating teachers, and care must thus be taken in terms of a wider interpretation of the results.

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## 5. Results

### 5.1. *Online survey*

The low number of teachers participating indicated that the results from the online survey lent themselves more easily to informal (visual) examination than to statistical analysis. Accordingly, teachers' responses were inspected according to main tendencies and exceptions. Given the small sample size, relatively detailed examination was possible in certain cases.

The results are reported in accordance with the order of the questions in the online survey; teachers' characteristics will be considered first (in 5.1.1), followed by their responses on the belief instruments (see 5.1.2).

#### 5.1.1. Teacher characteristics

Questions number 2-15 of the survey were intended as background variables for statistical testing. Given the previously discussed small sample size the method of hypothesis-testing was changed for visual examination of the data. Accordingly, a visual inspection of the teachers' characteristics was performed, to identify any major trends. Given that these items were not included in further analysis, a detailed description of teachers' characteristics can be found in appendix 8.1. Presently, the main tendencies will be noted.

Overall, more female than male teachers responded to the survey. Most teachers reported having grown up in the respective countries they were working in, while a smaller number of teachers had lived there for a long time. The Norwegian teachers were relatively younger than the Australian ones, who by extension also possessed more teaching experience than their Norwegian peers.

The Australian teachers worked at schools of a various sizes, while most Norwegian teachers worked at schools with between 301 and 400 students. While all the Australian teachers reported teaching either mathematics, or English, or both more than other subjects, the Norwegian teachers' responses included a larger variety of subjects. The Australian teachers seemed to rate their schools (in terms of student performance) slightly higher than their

Norwegian teachers, while teachers in both countries generally rated the students they were presently teaching as either average or above average in terms of student performance.

Most teachers in both countries responded they felt cultural affinity to the country they were living and working in. Some of the teachers reported feeling affinity with several groups, seemingly related to their background in terms of country of origin.

### 5.1.2. Teacher responses on belief items

The teachers were asked to which degree 14 human characteristics could be changed or modified. The first 13 characteristics were related to intelligence implicitly, while in the last item the term "intelligence" was explicitly stated (see 4.1.2). 6 statements concerning the modifiability of the characteristics were given, ranging from 1= "cannot be further developed", till 6= "can be further developed to a very large extent". For each characteristic the teachers were asked to select the statement that best described their belief.

In the original application by the CIS instrument, Bråten and Olaussen combined the scores on the 13 first items to find the mean total scores among the participants. Looking at participants responses as they are distributed by country, the Australian teachers responded that the 13 characteristics were slightly more modifiable ( $M = 65,3$   $SD = 5,3$ ) than the Norwegian teachers ( $M = 63,2$   $SD = 5,6$ ). Adjusting for the extra response option provided in the present version (see 4.1.2), the results are comparable to those achieved by Bråten and Olaussen. However, given the small number of survey replicants, any statistical testing of these means does not make much sense. It might thus be more interesting to look at the distribution of the teachers' replies across the 13 characteristics, rather than the difference in mean scores.

Country teaching in * Items on characteristics of intelligent behavior							
	1	2	3	4	5	6	Total
	Cannot be further developed	Can be further developed to a very little extent	Can be further developed to a little extent	Can be further developed to some extent	Can be further developed to a large extent	Can be further developed to a very large extent	

Reading comprehension									
Country teaching in	Australia	Count % within					2 33.3%	4 66.7%	6 100.0%
	Norway	Count % within					6 28.6%	15 71.4%	21 100.0%
	Total	Count % within					8 29.6%	19 70.4%	27 100.0%
Vocabulary									
Country teaching in	Australia	Count % within					3 50.0%	3 50.0%	6 100.0%
	Norway	Count % within				1 4.8%	5 23.8%	15 71.4%	21 100.0%
	Total	Count % within				1 3.7%	8 29.6%	18 66.7%	27 100.0%
Reading pleasure									
Country teaching in	Australia	Count % within				2 33.3%	2 33.3%	2 33.3%	6 100.0%
	Norway	Count % within				1 4.8%	7 33.3%	13 61.9%	21 100.0%
	Total	Count % within				3 11.1%	9 33.3%	15 55.6%	27 100.0%
Application of knowledge to solve problems at hand									
Country teaching in	Australia	Count % within				0 .0%	4 66.7%	2 33.3%	6 100.0%
	Norway	Count % within				4 19.0%	13 61.9%	4 19.0%	21 100.0%
	Total	Count % within				4 14.8%	17 63.0%	6 22.2%	27 100.0%
Understanding the essence of a problem									
Country teaching in	Australia	Count % within			0 .0%	1 16.7%	3 50.0%	2 33.3%	6 100.0%
	Norway	Count % within			1 4.8%	4 19.0%	14 66.7%	2 9.5%	21 100.0%
	Total	Count % within			1 3.7%	5 18.5%	17 63.0%	4 14.8%	27 100.0%
Approaching problems thoughtfully									
Country teaching in	Australia	Count % within			0 .0%	1 16.7%	4 66.7%	1 16.7%	6 100.0%
	Norway	Count % within			1 4.8%	8 38.1%	9 42.9%	3 14.3%	21 100.0%
	Total	Count % within			1 3.7%	9 33.3%	13 48.1%	4 14.8%	27 100.0%
Learning speed									
Country teaching in	Australia	Count % within			0 .0%	3 50.0%	3 50.0%	0 .0%	6 100.0%
	Norway	Count % within			3 14.3%	6 28.6%	8 38.1%	4 19.0%	21 100.0%
	Total	Count			3	9	11	4	27

			% within			11.1%	33.3%	40.7%	14.8%	100.0%
Attention										
Country teaching in	Australia	Count			0	2	3	1	6	
		% within			.0%	33.3%	50.0%	16.7%	100.0%	
	Norway	Count			1	5	13	2	21	
		% within			4.8%	23.8%	61.9%	9.5%	100.0%	
	Total	Count			1	7	16	3	27	
		% within			3.7%	25.9%	59.3%	11.1%	100.0%	
Identification of connections among ideas										
Country teaching in	Australia	Count			0	0	4	2	6	
		% within			.0%	.0%	66.7%	33.3%	100.0%	
	Norway	Count			1	10	9	1	21	
		% within			4.8%	47.6%	42.9%	4.8%	100.0%	
	Total	Count			1	10	13	3	27	
		% within			3.7%	37.0%	48.1%	11.1%	100.0%	
Logical reasoning										
Country teaching in	Australia	Count			0	2	4	0	6	
		% within			.0%	33.3%	66.7%	.0%	100.0%	
	Norway	Count			3	6	9	3	21	
		% within			14.3%	28.6%	42.9%	14.3%	100.0%	
	Total	Count			3	8	13	3	27	
		% within			11.1%	29.6%	48.1%	11.1%	100.0%	
Intellectual curiosity										
Country teaching in	Australia	Count		0	0	3	2	1	6	
		% within		.0%	.0%	50.0%	33.3%	16.7%	100.0%	
	Norway	Count		1	1	9	8	2	21	
		% within		4.8%	4.8%	42.9%	38.1%	9.5%	100.0%	
	Total	Count		1	1	12	10	3	27	
		% within		3.7%	3.7%	44.4%	37.0%	11.1%	100.0%	
Assessing the relevance of information to a problem at hand										
Country teaching in	Australia	Count			0	3	2	1	6	
		% within			.0%	50.0%	33.3%	16.7%	100.0%	
	Norway	Count			1	6	13	1	21	
		% within			4.8%	28.6%	61.9%	4.8%	100.0%	
	Total	Count			1	9	15	2	27	
		% within			3.7%	33.3%	55.6%	7.4%	100.0%	
Thinking speed										
Country teaching in	Australia	Count		0	0	1	4	1	6	
		% within		.0%	.0%	16.7%	66.7%	16.7%	100.0%	
	Norway	Count		1	3	7	10	0	21	
		% within		4.8%	14.3%	33.3%	47.6%	.0%	100.0%	
	Total	Count		1	3	8	14	1	27	
		% within		3.7%	11.1%	29.6%	51.9%	3.7%	100.0%	

**Table 1 Teachers' beliefs: Items implicitly related to intelligence**



Table 1 shows the distribution of teachers' replies for each of the 13 characteristics (implicitly) associated with intelligence. The items or characteristics are here organized according to the teachers' responses, with the seemingly more modifiable items first.

The table demonstrates some general tendencies. Throughout, most of the teachers chose responses on the right hand side of the scale, in other words, they tended to see all items as more rather than less modifiable. For 12 out of 13 items, at least 50 % of all participants (teachers from both Norway and Australia) chose one of the last two responses on the 6 point scale; 5= "can be further developed to a large extent" or 6= "can be further developed to a very large extent". The highest frequency of responses from either country was always statement number 4 or above. The tendency to choose statements towards the more modifiable end of the scale was further demonstrated by how statement no 1= "cannot be further developed" was never used by any of the participants, and statement no 2= "can be further developed to a very little extent" was chosen on only two items, and then by one teacher from each country only.

Overall, "reading comprehension", "vocabulary" and "reading pleasure" were seen as the most modifiable characteristics. 19, 18 and 15 teachers (out of 27), respectively, chose statement no 6= "can be further developed to a very large extent" for these items. This accounted for more than 50% of all the responses in each case. These three characteristics are all directly linked to reading and reading ability, which to most teachers is a well-defined and practiced domain of instruction. Evidently, the more tangible and well-defined characteristics were seen to be the most modifiable.

The three items deemed the least modifiable were "thinking speed", "assessing the relevance of information to a problem at hand" and "intellectual curiosity". These concepts might seem more intangible than the ones concerning reading ability, and also concern domains that are not usually well-defined or practiced in the classroom. These items received the least responses on the "high end" of the scale (statements no 5 and 6), and the most responses on the "lower end" of the scale (statements no 2 and 3). Even so, between 37% and 56% of all participating teachers still felt these characteristics were quite modifiable, choosing statement no 5= "can be further developed to a large extent". This serves to further demonstrate the major tendency of the teachers' responses; all 13 characteristics were viewed as more rather than less modifiable.

Looking at responses by country, some other tendencies were evident. Overall, the responses from teachers in Norway and Australia were distributed quite similarly across the scale, with some minor variations. It is hard to ascertain to which degree these variations stemmed from true differences between the two groups, or from the high difference in participating teachers from each country. For 8 out of 13 characteristics the Australian teachers, percentage-wise, chose more statements on the high end of the scale, and less statements on the low end, than the Norwegian teachers. Looking at the number of responses though, Australian teachers outnumbered the Norwegian teachers on the last statement, no 6= "can be further developed to a very large extent", on only two occasions, and by one teacher only on each occasion. With a sample as small as the group of Australian teachers, one teacher counts for 16.7% of the responses, against only 3.7% by one Norwegian teacher. Thus one different response by an Australian teacher changes the distribution much more than one different response by a Norwegian teacher, and care is needed when interpreting the responses according to percentages.

Amongst the Australian teachers, the lower half of the scale of statements (i.e. statements 1, 2 and 3) were never applied for the 13 characteristics. While statements no 2 and 3 figured among the responses from the Norwegian teachers on a few characteristics, statement no 1; "cannot be further developed", was never chosen for any items.

**Country teaching in \* Intelligence Crosstabulation**

Intelligence			1= cannot be further developed	2= can be further developed to a very little extent	3= can be further developed to a little extent	4= can be further developed to some extent	5= can be further developed to a large extent	6= can be further developed to a very large extent	Total
Country teaching in	Australia	Count % within			2 33.3%	2 33.3%	2 33.3%	0 .0%	6 100.0%
	Norway	Count % within			4 19.0%	7 33.3%	7 33.3%	3 14.3%	21 100.0%
	Total	Count % within			6 22.2%	9 33.3%	9 33.3%	3 11.1%	27 100.0%

**Table 2 Teachers' beliefs: Intelligence**

As demonstrated in table 2, teachers' responses to the 14<sup>th</sup> and last characteristic, "intelligence" demonstrated a different pattern than responses to the earlier characteristics.

Teachers in both countries deemed the characteristic to be a little less modifiable than the earlier ones. While the responses to the earlier 13 characteristics had indicated that the Australian teachers found them to be slightly more modifiable than the Norwegian teachers, the opposite was true for the 14th item. The Norwegian teachers responded intelligence was slightly more modifiable ( $M = 4,4$   $SD = .98$ ) than did their Australian counterparts ( $M = 4,0$   $SD = .89$ ). Again, given that statistical testing of mean differences was not deemed appropriate with the present sample size, an exploration of the distribution of responses seemed more adequate.

The Australian teachers' responses were evenly distributed amongst statements 3, 4 and 5, with 2 out of 6 teachers selecting each one. This was the only time teachers from Australia employed statement no 3, "can be further developed to a little extent", or in fact any statement below no 4, on any of the CIS items. The highest frequencies of responses amongst the Norwegian teachers were on statements 4 and 5. Seven out of 21 (33%) teachers chose each of these statements. 4 out of 21 (19%) of the Norwegian teachers selected statement 3, which was a higher frequency of responses than any of the first three statements had received for any of the characteristics.

All in all, the results demonstrated that responses to the characteristics that were implicitly related to intelligence were somewhat differentially distributed than the responses to the explicit characteristic "intelligence" itself. Responses to the 13 implicit characteristics were more positively skewed, indicating they were believed to be more modifiable, than responses to the one explicit characteristic. At the same time, as illustrated by the interviews (see chapter 5.2.3 below), the concept "intelligence" is somewhat arbitrarily applied by many teachers, indicating it might be perceived of as an ill-defined concept. In this view, the distribution of responses can be seen in the light of teachers deeming well-defined concepts to be more modifiable than ill-defined concepts.

The last part of the survey concerning beliefs about intelligence was made up by items taken from Dweck (2008), designed to measure "implicit theories of intelligence", or whether individuals tended towards an incremental or an entity view of intelligence. With the instrument from Dweck, teachers were given 8 statements (for instance; "Anyone can change even his/her basic intelligence level considerably"), and asked to indicate on a 6 point scale to which degree they agreed with the statement, where 1= "strongly agree" and 6= "strongly

disagree”. 4 of the statements were negative, of the kind “Someone's intelligence is something about them that they can't change very much”, while 4 were positive, of the kind “No matter who someone is, they can significantly change their intelligence level”.

The Norwegian teachers as a group demonstrated slightly more incremental views regarding intelligence ( $M = 32,4$   $SD = 8,3$ ) than their Australian counterparts ( $M = 29,8$   $SD = 12,8$ ). The reliability for this measure was .95 (Cronbach's Alpha). As discussed regarding the items on the CIS, statistical testing of these differences in means makes little sense given the small sample size, however. The data thus lends itself more easily to careful exploration of the distribution of scores.

Country teaching in * Incremental vs entity items from Dweck									
			1	2	3	4	5	6	Total
			strongly agree	agree	mostly agree	mostly disagree	disagree	strongly disagree	
People have a certain amount of intelligence, and they can't really do much to change it.									
Country teaching in	Australia	Count	1	0	2	0	2	1	6
		% within	16.7%	.0%	33.3%	.0%	33.3%	16.7%	100.0%
	Norway	Count	0	1	5	5	8	2	21
		% within	.0%	4.8%	23.8%	23.8%	38.1%	9.5%	100.0%
	Total	Count	1	1	7	5	10	3	27
		% within	3.7%	3.7%	25.9%	18.5%	37.0%	11.1%	100.0%
Someone's intelligence is something about them that they can't change very much.									
Country teaching in	Australia	Count	0	1	2	0	2	1	6
		% within	.0%	16.7%	33.3%	.0%	33.3%	16.7%	100.0%
	Norway	Count	0	1	5	6	7	2	21
		% within	.0%	4.8%	23.8%	28.6%	33.3%	9.5%	100.0%
	Total	Count	0	2	7	6	9	3	27
		% within	.0%	7.4%	25.9%	22.2%	33.3%	11.1%	100.0%
People can learn new things, but they can't really change their basic intelligence.									
Country teaching in	Australia	Count	1	0	2	0	2	1	6
		% within	16.7%	.0%	33.3%	.0%	33.3%	16.7%	100.0%
	Norway	Count	1	4	2	5	7	2	21
		% within	4.8%	19.0%	9.5%	23.8%	33.3%	9.5%	100.0%
	Total	Count	2	4	4	5	9	3	27
		% within	7.4%	14.8%	14.8%	18.5%	33.3%	11.1%	100.0%
To be honest, people can't really change how intelligent they are.									
Country teaching in	Australia	Count	0	1	2	0	2	1	6
		% within	.0%	16.7%	33.3%	.0%	33.3%	16.7%	100.0%
	Norway	Count	1	2	2	5	9	2	21
		% within	4.8%	9.5%	9.5%	23.8%	42.9%	9.5%	100.0%
	Total	Count	1	3	4	5	11	3	27
		% within	3.7%	11.1%	14.8%	18.5%	40.7%	11.1%	100.0%

People can always substantially change how intelligent they are.									
Country teaching in	Australia	Count	1	0	2	1	1	1	6
		% within	16.7%	.0%	33.3%	16.7%	16.7%	16.7%	100.0%
	Norway	Count	2	6	8	3	1	1	21
		% within	9.5%	28.6%	38.1%	14.3%	4.8%	4.8%	100.0%
	Total	Count	3	6	10	4	2	2	27
		% within	11.1%	22.2%	37.0%	14.8%	7.4%	7.4%	100.0%
No matter who someone is, they can significantly change their intelligence level.									
Country teaching in	Australia	Count	1	0	2	2	1	0	6
		% within	16.7%	.0%	33.3%	33.3%	16.7%	.0%	100.0%
	Norway	Count	2	6	7	4	1	1	21
		% within	9.5%	28.6%	33.3%	19.0%	4.8%	4.8%	100.0%
	Total	Count	3	6	9	6	2	1	27
		% within	11.1%	22.2%	33.3%	22.2%	7.4%	3.7%	100.0%
No matter how much intelligence someone has, they can always change it quite a bit.									
Country teaching in	Australia	Count	1	1	1	1	2	0	6
		% within	16.7%	16.7%	16.7%	16.7%	33.3%	.0%	100.0%
	Norway	Count	2	5	9	3	1	1	21
		% within	9.5%	23.8%	42.9%	14.3%	4.8%	4.8%	100.0%
	Total	Count	3	6	10	4	3	1	27
		% within	11.1%	22.2%	37.0%	14.8%	11.1%	3.7%	100.0%
Anyone can change even his/her basic intelligence level considerably.									
Country teaching in	Australia	Count	1	1	1	0	3	0	6
		% within	16.7%	16.7%	16.7%	.0%	50.0%	.0%	100.0%
	Norway	Count	1	3	10	4	1	2	21
		% within	4.8%	14.3%	47.6%	19.0%	4.8%	9.5%	100.0%
	Total	Count	2	4	11	4	4	2	27
		% within	7.4%	14.8%	40.7%	14.8%	14.8%	7.4%	100.0%

**Table 3 Teachers' beliefs: Incremental versus entity beliefs Dweck**

Table 3 displays the distribution of responses on each of Dweck's 8 items for each country. The statements have here been organized according to whether they are positive or negative, for ease of comparison. The first 4 statements in this table are negative, while the last 4 statements are positive. For the negative statements the first 3 responses (1, 2 and 3) on the scale would indicate an entity view, and the last 3 responses (4, 5 and 6) on the scale would indicate an incremental view. For the positive statements the opposite would be true; the first 3 responses (1, 2 and 3) on the scale would indicate an incremental view, and the last 3 responses (4, 5 and 6) on the scale would indicate an entity view.

One major tendency emerging from the responses to Dweck's instrument is that the whole scale has been used throughout all the statements and for both countries. Furthermore, the

responses seem to be fairly consistently distributed across the left and right part of the scale, for all the statements.

For the Australian teachers, throughout the instrument, 3 out of 6 (50%) chose one of the responses tending towards an incremental view, while 3 out of 6 (50%) chose one of the responses tending towards an entity view. Responses from the Norwegian teachers were nearly as consistently distributed; throughout the instrument between 14 (67%) and 16 (76%) out of 21 teachers chose responses from the side of the scale supporting an incremental view, while the rest, between 5 (24%) and 7 (33%) out of 21 teachers chose responses on the side of the scale tending towards an entity view (table 3).

Given the small number of responses, it was possible to look at the distribution of responses across items for each individual teacher. This demonstrated the Australian teachers were very consistent in their views, as the same teachers demonstrated either entity views or incremental views throughout the instrument. Similarly, the Norwegian teachers were found to be quite consistent, while not as consistent as their Australian counterparts, when the distribution of their individual responses was investigated. 10 Norwegian teachers consistently chose responses according to an incremental view, while 3 teachers consistently chose responses according to an entity view. Two additional teachers chose incremental responses throughout the scale, with the exception of one item each. The items in question were both reversed in relation to the first, negative, statement of the instrument (see chapter 4.1.2). It is thus possible the teachers did not read the text clearly in these instances, and misunderstood the statements.

Scores from Dweck's instrument were combined to get respondents' mean scores. To achieve this, the positive statements (the last 4 statements in table 3) were reversed. Thus a low mean score would indicate an entity view and a high mean score would indicate an incremental view. In previous research by Dweck and her colleagues (Dweck, Chiu, & Hong, 1995) respondents with a mean score of 3,0 or less were classified as having entity views, and those with a mean score of 4,0 or above as having incremental views. Those who fell in between (mean scores between 3,1 and 3,9) were classified as "uncertain", as they did not express clear views. The same classification method was utilized in this instance.

			Incremental vs entity view; mean scores			
			Clear entity view (mean score 1-3,0)	Uncertain (mean score 3,1-3,9)	Clear incremental view (mean score 4,0-6)	Total
Country teaching in	Australia	Count	3	0	3	6
		% within	50%	0%	50%	100.0%
	Norway	Count	3	6	12	21
		% within	14%	29%	57%	100.0%
	Total	Count	6	6	15	27
		% within	22%	22%	56%	100.0%

**Table 4 Teachers' beliefs: Incremental versus entity beliefs, mean scores**

Table 4 demonstrates the distribution of teachers deemed to hold incremental and entity views according to their mean scores, across the two countries. Again, the consistency of the views of the Australian teachers was evident. This is displayed through their mean scores (table 4), where none of the Australian teachers fall in the “undecided” category, but all have a clear view. Half the Australian teachers ended up with mean scores indicating clear entity views, and the other half with mean scores indicating incremental views.

Looking at the mean scores of the Norwegian teachers, 12 (57%) ended up with scores indicating clear incremental views, and 3 (14%) with scores indicating clear entity views (table 4). Six (29%) teachers had mean scores that landed them in the “undecided” category. Looking at the individual distribution of responses from the Norwegian teachers, 4 of the “undecided” teachers had consistently chosen middle responses (i.e. response no 3 or 4), while 2 were inconsistent in their responses, alternating between incremental and entity views from statement to statement. It is possible that one of these respondents did not read all the statements clearly, as this teacher had chosen the same response, i.e. response no 2, throughout the instrument, not taking into account whether the statements were positive or negative. As discussed above, the Norwegian teachers with mean scores landing them in either the clear entity or the clear incremental views were largely consistent in their responses, with the two noted exceptions.

In order to investigate the relationship between school context and teachers' beliefs, the teachers were placed in three groups, according to whether they rated their school as below

average, average or above average in terms of student performance. (Another item concerning student ability was included in the survey (question number 12, see appendix 8.7). However, only one teacher responded that his/her students were below average in terms of academic performance (see table 17, appendix 8.1), which meant a meaningful comparison on the basis of results from this item could not be made.)

**School performance \* Mean scores on belief items Crosstabulation**

School performance	N	Mean scores on belief items		
		13 (implicit)	Intelligence	Dweck
Above average	4	5.14	3.75	4.28
Average	17	5.00	4.53	4.07
Below average	6	4.44	4.17	3.52

**Table 5 Teachers' beliefs: School performance and belief items**

Table 5 demonstrates teachers' mean scores on the three different types of belief items, according to how they rated their schools. Teachers who rated their schools as above average in terms of student performance got higher combined mean scores on the 13 first items from the CIS than teachers who rated their schools as below average. The same tendency, though not as pronounced, was evident on the responses to 8 items by Dweck, while the responses to the single 'intelligence' item were in the opposite direction, teacher rating their schools as above average actually achieving a lower mean score than those rating their schools as below average.

Considering at the mean scores from all three groups (rating their schools as below average, average and above average in terms of student performance) in relation to scores on the 13 items from the CIS as well as Dweck's 8 items, there were small differences in mean scores between the 'average' and 'above average' group, while the below average group had a lower mean than both.

A note must be made regarding the distribution of responses to this item, as only one Australian teacher, against 5 Norwegian teachers, responded his/her school was below average in terms of student performance. As such, it is difficult to ascertain whether these



results are related to differences in school context, or reflect a cultural difference between Norway and Australia. However, the small difference between Australian and Norwegian teachers' responses on the same belief items (see above), indicate it is more likely a result stemming from differences in school context. Nevertheless, it is uncertain to which degree these results are applicable to the Australian context, given the skewed responses.

The inconsistency in the responses to this item should also be taken note of. While differences in mean scores between the 13 first items and the items more explicitly related to intelligence have been reported above, the present responses differ in that the mean scores on 'intelligence' and Dweck's 8 items show different patterns. Again, the small sample size must be emphasized, in relation to the impact it would have on the mean scores if only one teacher in either group changed his/her responses.

### **5.1.3. Synthesis of online survey results**

In sum, small differences were found between the incremental versus entity beliefs held by teachers in Norway and Australia. Teachers in both countries generally tended towards an incremental view of intelligence.

A somewhat unexpected tendency emerged, in that teachers' responses varied according to the item types. As a group, teachers in general deemed the 13 items implicitly related to intelligence to be more modifiable than either the single intelligence item, or the 8 items by Dweck.

Along the same lines, the between-group differences also varied according to the degree of explicitness of the items. The total mean scores on the different instruments were adjusted to enable comparison. While for the 13 "implicit" items (see table 1) Australian teachers chose responses demonstrating slightly more incremental views of intelligence than the Norwegian teachers (Australian teachers  $M = 5,0$ ; Norwegian teachers  $M = 4,9$ ), this was not true in regards to the more explicit items. With regards to item no 14, "intelligence" (table 2) (Australian teachers  $M = 4,0$ ; Norwegian teachers  $M = 4,4$ ), and the mean score on Dweck's instrument (table 3) (Australian teachers  $M = 3,7$ ; Norwegian teachers  $M = 4,0$ ), which contained statements where the term intelligence was explicitly stated, Norwegian teachers expressed more incremental views of intelligence than their Australian counterparts.

Finally, results pointed to a relationship between beliefs about intelligence and whether teachers rated the school they worked at as above or below average in terms of student performance. Teacher who rated their schools as above average responded the 13 first items on the CIS were more modifiable than teachers who rated their schools as below average. While this difference was relatively pronounced in relation to items low in face validity (13 items from CIS), the scores on the single intelligence item and Dweck's 8 items were conflicting.

## **5.2. Interviews**

As stated earlier (see chapter 4.2.4), all interview responses were organized in an Excel matrix, including direct quotations and temporal references. This chart was used to identify main tendencies as well as exceptions to trends in the teachers' responses. Key findings from the interviews are here described, and direct quotations are given to substantiate the findings. In order to keep the original meaning of the teachers as accurately as possible, the Norwegian quotations are presented in both Norwegian as well as translated form.

For most of the issues, the corresponding question number in the interview guide is given. As mentioned in the methods chapter though, not all teachers responded to all questions directly. It is generally stated whether the teacher's statement came as a direct response from an explicit question, was uttered at another time during the interview, or if the teacher's belief was derived at implicitly on the grounds of several statements.

### **5.2.1. Teacher characteristics**

Teacher demographic issues were related to questions one to five in the interview guide, and were generally covered early on in the interviews, as a means of warming up.

The teachers participating in the interviews were similarly distributed across the sexes; in both countries the interview participants consisted of 5 female and 3 male teachers. The Australian teachers were a little older than the Norwegian ones, with a mean age of 43.9 years against the Norwegian 39.5 years. The Australian teachers ranged from 30 to 54 years old, and the Norwegian teachers from 30 to 55 years old. The median for Australian teachers was 48 years, while for Norwegian teachers 38.5 years.

The participants had worked as teachers from less than three years to more than 30 years. The Australian teacher with the least experience had worked as a teacher for two and a half years, while the Norwegian one had worked for 5 years. In both countries, the most experienced teacher had worked for 33 years. Overall, the Australian teachers had more experience on the job than the Norwegian ones; on average, they had worked for of 17.4 years, against the Norwegian teachers' average of 12.5 years. This seems well aligned with the distribution of ages; the younger Norwegian teachers had a few years less in the job than their slightly older Australian counterparts. Some of the teachers (3 in Norway) mentioned having worked as temporary and relief teachers or at SFO (skolefritidsordning; a Norwegian system along the lines of 'after-school-care') either before or during undertaking their teacher education training.

All the teachers were professionally trained through completing teacher education programs in either Norway or Australia. Several of the Australian teachers had completed a Bachelor of Arts, for instance in Psychology, Anthropology or Media & Communication, and then done a Diploma of Education.

6 of the Australian and 4 of the Norwegian teachers worked at the same schools. The school characteristics were covered in chapter 4.2.1. Most of the teachers worked as regular, full-time teachers.

### **5.2.2. Cultural background**

*Information from this section is removed in the present version of the thesis due to issues relating to participant confidentiality.*

Four of the Australian teachers were both born and had grown up in Australia, and reported feeling strong affinity w Australian culture (questions six to eight in the interview guide). One teacher, whilst born and raised in Australia, did not elaborate further on her cultural belonging. She did relate how she had all her professional and teaching experience – which was more than 30 years – from working in Australian schools, though, and displayed a sense of strong belonging to the Australian community in general through her comments. One teacher was born in New Zealand, but had lived in Australia for more than 30 years. She felt

the transition moving to Australia had been easy, as the cultures were so similar. Two teachers working in Australia had close ties to other cultures, as well as the Australian one.

All the Norwegian teachers were both born and had grown up in the country. They reported they felt belonging and cultural affinity with Norway and Norwegian culture.

### 5.2.3. The nature of intelligence

In relation to their beliefs about intelligence, teachers were asked what intelligence meant to them (question number 9), whether there were several types of intelligence (questions number 14 and 20) and whether it could be changed or was given from birth (question number 10).

When asked about their understanding of the **concept "intelligence"** (question number 9), most teachers (6 in each country) emphasized characteristics related to a "classical" view of intelligence; something to do with thinking capacity. The specific characteristics mentioned by these teachers were the ability to solve problems or draw connections between ideas (5 teachers in each country), thinking speed (1 teacher in Australia, 2 teachers in Norway) and finally "capacity", meaning mental capacity (2 teachers in Norway). Some teachers mentioned several characteristics.

Alice: *"[An intelligent person is] someone who thinks outside the box, who is quite clever, draws connections, between what they've learnt and new things."*

Hedda: *"[En intelligent person er] en person som har stor mental kapasitet. Som klarer å reflektere rundt temaer, og treffe logiske slutninger."* ("[An intelligent person is] a person with a large mental capacity. Who is able to reflect around themes, and draw logical conclusions.")

Ulf: *"Intelligens for meg er å være faglig flink. Det at du klarer å trekke konklusjoner kjapt, ut fra lite informasjon, så klarer du å sette det i en større sammenheng. Altså den klassiske intelligensen."* ("Intelligence, to me, is to be clever academically. The fact that you can draw conclusions quickly, from little information, and manage to relate it to the "larger picture". In other words, the classical intelligence.")

Three teachers in Australia and two in Norway differed from the rest in their responses. Two of the Australian teachers, Victoria and Sophie, emphasized skills less cognitively based; awareness of surroundings and "love of learning", respectively. Victoria put it in this way: *"The children that I would call intelligent, are very aware of their surroundings, and how they are supposed to be in the interaction with other people."* When considering their other responses as well as examples mentioned throughout the interviews, however, it seemed likely that both these teachers

actually did view intelligence as something related to cognitive capability, as well. They both placed a high value on social and emotional aspects of learning, though, and seemingly thus emphasized these traits as factors of great importance to development and learning.

The third Australian teacher, Dave, emphasized classical traits of intelligence like most of the teachers, namely the ability to understand or comprehend ideas. Dave differed in that he seemed to think students had a choice in regards to this; intelligence was to understand, as opposed to giving up and not trying to understand. *"Maybe just comprehending, or understanding a concept, intelligence (...) and then the student saying, "okay, I understand that". (...) While in a way, seems to be a lot of the time, the majority of the class just sort of throw their hands up and go "I just don't quite understand it".*

The two Norwegian teachers, Bjørn and Tove, expressed different views of intelligence again. Bjørn had a very defined and rather complex three-fold understanding of intelligence as related to knowledge: The amount of knowledge a person held, whether he/she possessed strategies to obtain more knowledge, and finally whether he/she had the ability to apply this knowledge in practice. His emphasis on clearly defined traits, that are seemingly strongly related to experience, put Bjørn's beliefs aside from those of most of the other teachers. *"For meg så betyr rett og slett intelligens kor mye kunnskap man innehar, kordan man kan innhente kunnskap, kordan man bruker kunnskapen."* ("For me, intelligence simply means how much knowledge one possesses, how one is able to retrieve knowledge, (and) how one uses the knowledge.")

Finally, Tove reported generally not using the word, as she felt it was related to very narrow definitions, such as IQ tests. When encouraged, she replied it might have something to do with the capacity to learn, however. *"Det er egentlig et ord jeg- tror nesten ikke jeg bruker det."* *"Det er et ord jeg forbinder med IQ tester og et veldig sånn avgrensa definisjon av kvalitet, på et vis."* ("That is actually a word I - I don't think I really use it." "It is a word I associate with IQ-tests and a very limited definition of quality, in a way.") Her belief system, as demonstrated throughout the interview, was centered around the basic premise that all children were very complex, and had large potential for learning. This seemed to foster a dislike/trust of any type of static categorization.

Most of the teachers (6 in Australia and 5 in Norway) believed there were several **types of intelligence**, as related to Gardner's (1983) "multiple intelligences" (questions number 14 and 20). The teachers mostly related this to how a student who was good in one area, was not

necessarily good in another, in other words; children had specific strengths which the teachers perceived of as innate.

Christina: *"I think kids have different types of intelligence. Like some, can be really good, ahm, with practical things, and some are good creatively, and some are good, you know, in different aspects."*

Rob: *"I know that there are different types of intelligence, for different things."*

Ulf: *"En som er faglig flink, det er ikke dermed sagt at han er sosialt intelligent. Det er forskjellige intelligenser." ("Someone who is clever academically, it is not a given he is socially intelligent. There are different types of intelligence.")*

4 of these teachers in Norway and 5 of these teachers in Australia all worked at the same primary schools. As previously mentioned (chapter 4.2.1), in the Norwegian school there were "multiple intelligence" posters lining the wall in the staff hall-way, depicting different types of intelligence and their related learning styles. It seems this "multiple intelligence environment" had had a definite influence on the teachers at the school. One of these teachers, Hedda, did not mention multiples intelligences explicitly, but expressed that she believed children were born with different learning styles (as related to the posters concerning multiple intelligences) and were born with strengths in certain areas, such as artistic or more strategic thinking. *"Dette her, med hjernehalvdelan og hvilken hjernehalvdel som liksom, eh, fer dominere da, er det mange som tenke. E synes det er en ganske fascinerande tanke, og e trur nok at det med, med, at noen kanskje er mæ kunstneriske ta seg, og noen er mære strukturerte-analytiske, da." ("This thing, in regards to different parts of the brain, and which side of the brain which kinda, is allowed to dominate, a lot of people think that. I think it is a fascinating thought, and I do believe that in relation to, that, that some people might be more artistic, and others more structural-analytical, in a way.")*

The fifth Norwegian teacher who expressed beliefs in multiple intelligences, Nina, worked at a school in the same county as the other four Norwegian teachers. These five mentioned how there was a focus on individualized teaching according to students' specific needs and abilities in Norway, a Norwegian educational policy going back to the early 20th century (see 3.1.1). Nina: *"På denne skolen, og jeg vil anta de fleste norske skoler, så snakker man jo om forskjellige typer intelligens." "Noen er matte-smarte, noen er musikk-smarte, noen er sosialt smarte." ("At this school, and I would assume at most Norwegian schools, we talk about different types of intelligence." "Some people are maths-smart, some are music-smart, some are smart socially.")*

Summing up, with reference to questions 14 and 20, it is interesting to note the manner in which beliefs about multiple intelligences were expressed by several of the teachers; statements such as "I know that.." or "there are.." or "we talk about.." were indicative that the

teachers regarded this as knowledge, not beliefs. It is reasonable to assume that the manner in which the general school environment supported and, in the case of the Norwegian school, advertised, views on intelligence had influenced the teachers' beliefs in this point. Nina's response, indicating she felt there was a general consensus at her school that people had different types of intelligence, supports this.

Of considerable interest to this research was the extent to which the teachers believed intelligence could be **changed** (incremental view) or was given from birth (entity view) (question number 10). It was also of interest whether there were any indications that cultural backgrounds (in other words whether the teacher had lived and/or worked in Norway or Australia) influenced the teachers' beliefs about this. As it turned out, most of the teachers (5 out of 8 in Australia and 5 out of 8 in Norway) responded that they believed intelligence could be changed. It was interesting to note how teachers in the two countries seemed not to differ substantially in this respect.

Sophie: *"I think they can change their intelligence, I think it is something that develops."*

Christina: *"I think that it is really important what happens in those early years." "Yeah, I definitely think it can be changed, and taught."*

Nina: *"Jeg kan ikke helt si at jeg tror at intelligens er noe konstant. Det er jo noe som man utvikler." ("I cannot really say I believe intelligence is a constant thing. It is something one develops.")*

Tove: *"Det vil jeg tenke på som noe du kan utvikle hele livet, og som alle barn har store potensiale på." ("I would like to consider that something you can develop all your life, and which all children has a large potential within.")*

It seemed like the question of whether or not intelligence could be modified was closely related to how the teachers conceptualized of intelligence in the first place. One of the Norwegian teachers demonstrated this. With his belief that intelligence was directly related to knowledge, Bjørn was certain that it could be changed. In his view, knowledge was not a constant thing, but something that could change and develop. *"Eg vil si, at det er noe som kan endres. Kunnskap er ikkje noe statisk, det er noe som hele tiden endres." ("I would say, it is something which can be changed. Knowledge is not a static thing, it is constantly evolving.")*

Not surprising, given how the teachers varied in their conceptualization of intelligence, the question of modifiability was not equally clear-cut for all the teachers. Two teachers (one in Norway and one in Australia) expressed a level of uncertainty. Hedda held a rather classical

view about intelligence as related to mental capacity. She believed everyone was born with a certain potential, but emphasized how most people never reach their full potential. While she was reluctant to give this answer directly, it seemed she believed intelligence was innate and could not really be changed, but people could develop to a point within their given mental capacity. *"Altså du har på en måte en medfødt basis. Men så er liksom utviklingspotensialet utifra den basisen da, det e uant. Oss utnytter jo ikkje de mulighetan som e der – det er det jo egentlig ingen som gjør, tenkje ej. Altså, potensiale innafor intelligensen, da, e enormt. Men det e klart at det e forskjeller i medfødte disposisjoner, da."* ("Well, in a way you have an innate basis. But then, the potential for development starting from that basis, kind of, that is unknown. I mean, we don't utilize the possibilities there- I reckon noone really does. So, the potential within the intelligence, that is enormous. But there are obviously differences between innate dispositions.")

Alice had a different approach to the matter yet, in that she believed intelligence could possibly be changed *up to a point in time*. She mentioned research concerning how people could still develop their brains until the age of 24. While inconclusive about this, she seemed to take the view that people were born with different potential, and once "grown up", people could learn new things, but not change their actual intelligence. *"Obviously, some people have more brain capacity than others."* *"I think we're learning all our time, all our life, but I don't know if that shows intelligence."*

Four teachers (2 in each country) seemed definite in their views that intelligence was genetically based, and a stable trait. Gwen reckoned intelligence could not be changed, while at the same time noting that being intelligent was not always enough, and some times not even useful. In her view, children needed determination and belief in themselves to succeed. Rob believed learning ability and intelligence was one and the same thing; an intelligent person would learn new material more quickly and thoroughly than a less intelligent person. This ability was, in his view, given from birth, and would not develop through learning. *"I certainly believe that certain children are born with intelligence, more so than others, and pick things up."*

Stein believed that intelligence reflected a person's mental capacity. He emphasized that the environment had a large impact on learning, but felt that learning did not reflect a change in capacity. Ulf with his "classical" definition of intelligence, mentioned thinking speed as one component of intelligence. The following statement exemplifies how he, like Alice and Stein, believed that learning new things did not change someone's intelligence. *"Du kan sikkert trene på intelligens-tester, at du gjør det bedre. Men jeg trur ikke.. Altså, jeg mener at det er arvelig."* ("You can probably practice intelligence-test, to do better. But I don't believe.. Well, I believe it is hereditary.") These



views demonstrated the interrelatedness of the teachers' beliefs; their beliefs about the nature of intelligence were closely linked to whether they felt it was modifiable.

#### 5.2.4. The impact of nature and nurture on learning ability

While several teachers, as referred to above, saw intelligence as something generally innate and unmodifiable, the ability to learn was viewed as more closely tied to effort and motivation. All but two teachers, one in each country, reckoned it could be changed (question number 11). The potential influence on learning by the environment, in both directions, was emphasized, and the teachers expressed beliefs that the right stimulation and motivation could, to a smaller or larger degree, alleviate for shortcomings in terms of low innate intelligence. Simultaneously, most teachers felt that someone born with high intelligence or capacity would not reach their full potential unless the right environmental factors were present.

Christina: *"Certainly, some people are born with more capacity to learn than others. (...) On the other hand, you can get someone who has potential to, you know, the capacity to learn a lot, but then (...) it's not fostered or made use of."*

Gwen: *"My son was highly intelligent, you know, photographic memory and all that, but so incredibly lazy!"*  
*"Yet my daughter would work... And she's the one that's achieved most!"*

Line: *"Noe må være arv, noe er nødt til å være arv." "Jeg tror at en del kommer av arv, men jeg tror også at man kan gjøre mye med miljøet." ("Some of it must be genes, some has got to be genes." "I believe a part of it is due to nature ('inheritance'), but I also believe a lot can be done through the environment.")*

Solveig: *"Jeg tror man på en måte kan få litt struktur på det man har." "Har de noen knagger som gjelder følelser og begreper og hvordan man oppfører seg i hverdagen, liksom, så er det lettere å lære nye ting." ("I think, in a way, one can impose some order on what one 'has'." "If they have some 'pegs' for organizing emotions and concepts and how to behave from day to day, kind of, it will be easier to learn new things.")*

Most (4 out of 6) of the previously mentioned teachers who doubted intelligence could be changed (question number 10), still believed that the ability to learn could be developed. These teachers especially mentioned the role of motivation as well as the role of learning strategies.

Gwen: *"The kids have all these strategies in place, what they have to do. Step by step by step by... Its nearly fool proof, and if they follow it, they succeed!"*

Stein: *"Man kan plutselig merke det, hvis vi klarer å trigge riktige ting hos dem, som gjør at de klarer å strekke seg- når de da blir interessert så merker man at det er noe man kan jobbe med." ("You can suddenly notice, if*

*we manage to trigger the right kinds of things in them, that enable them to stretch themselves- when they become interested, you notice this is something you can work with.”)*

Hedda: *”Ja, det tenker jeg heilt klart. At evnen til å lære, den er noe du kan jobbe med. Jobbe med læringsstrategian dine, da. Og bruke de kanalan som gjer at du lærer best.” (Yeah, I definitely think so. That the ability to learn, is something you can work on. Work on your learning strategies. And use those channels that make you learn in the best way.”)*

The two teachers who did not think the ability to learn could be changed both emphasized thinking speed in their conception of intelligence. Ulf first expressed beliefs that the ability to learn could be developed through the practice of learning strategies. He then qualified his response; this was probably only a matter of further realizing/developing the inborn potential in a person, and not really changing their ability to learn. *”Ja, metodene du kan lære det på. For det er jo vist på elever som er svake, altså med andre metoder og andre ting så klarer de å lære ting, og få bedre karakterer enn de gjorde før. Men det er vel kanskje at de har potensiale som de kanskje ikke har brukt.”* (“*Yeah, the methods you learn things with. Because that has been demonstrated on weak students, that with other methods and other things they manage to learn things, and get better grades than they did before. But then, I guess that might be that they have a potential they haven’t tapped.*”) Rob linked learning ability to intelligence directly; more intelligent people learnt either faster or more easily than less intelligent people. While he believed that one could acquire more knowledge through effort, this would simply result in a larger amount of knowledge, and would not affect someone’s intelligence nor their ability to learn. *”I think that you cannot become more intelligent, what you can do is learn more through, just, spending more time on it. And applying yourself a lot more.”* “*A person who is not as intelligent as someone else can still be a doctor if they so wish, but they will have to put more work into it. Because certain concepts won’t come to them straight away, so they have to go over it, revise it.*”

It is interesting to note that among the teachers who tended towards an entity view of intelligence, the only two who believed the ability to learn was fixed were also the only two who emphasized speed of learning/thinking speed in their definition of intelligence.

At the other end of the spectre was one single teacher, Dave, who believed intelligence as well as learning ability was mainly due to environmental stimulation alone. Dave believed bad schooling experiences could perpetuate from one generation to the next. Throughout the interview he emphasized the importance of perseverance, and the impact of expectations and encouragement from a child’s surroundings on learning and development. *“I think a lot of the influences such as teachers, such as parents, such as community, has a massive influence on them. (..) you know; ‘What’s the point of doing this because, there is no... Our end is NOT to have a job. Even if we do really well at*

*school, we'll end up...'" "I think there are many factors of, just, you know; if your mum and dad have never been pushed, you know... It's a generational thing, if your mum and dad haven't been pushed in literacy, in numeracy; then you're not really gonna be pushed, you know; 'Whats the point?'"*

To sum up, in terms of the relative influence of nature and nurture on children learning and achievement, nearly all teachers believed there was some influence from both, to varying degrees. 5 out of 8 teachers in each country gave responses indicating incremental views of intelligence, while 2 out of 8 teachers in each country tended towards entity views. One teacher in each country was deemed undecided. At the "extreme" ends, two teachers, one in Norway and one in Australia, believed learning and achievement was mainly a matter of innate capability, while one teacher in Australia reckoned it was mostly due to background and learning environment. There did not seem to be any differences in the distribution of the teachers' responses to these issues according to cultural background, at least not in terms of the content of the responses.

### **5.2.5. Gifted and talented education**

Related to the issue of the modifiability of intelligence is the issue of gifted and talented education. 10 teachers overall (6 in Australia and 4 in Norway) reported believing in giftedness in some way (questions number 14, 18 and 19). Like in the case of intelligence, however, the teachers' understandings of the concept giftedness varied somewhat.

All 6 teachers who believed in giftedness from Australia, and 2 of the teachers from Norway, meant that a gifted child was someone who had exceptional capabilities in one or several areas, capabilities that must at least partly be due to genes, and thus could not be achieved through practice alone. Alice related giftedness to performing at an exceptional level, and believed there were different types of giftedness. In other words, children might be exceptional in one or more specific areas, while average at other tasks. Ulf preferred the term talented for high-achieving children, and otherwise talked about people who were highly intelligent. He emphasized how highly intelligent or talented people did not have to work hard to achieve at a high level; they possessed an innate capability.

*Alice: "I think it means that they are exceptional in one area, it doesn't have to be academic." "I think ah, that you've got a genetic code, and there are some things that are already predetermined." "I think gifted and talented is that you try things, you do things, that noone has taught you before."*

Ulf: (in relation to student) *"Han var rå altså. Han var da ett år yngre. Og særlig, og sånn derre nyhetstest da, hver uke, og han klarte nesten å matche meg, da..."* *"Han var sånn derre, uansett hva det var så hadde han peiling på det, og det er liksom da du spør deg; hvordan kan noen klare å fange opp så mye? Han var jo også veldig flink, faglig, da."* (*"He was just beyond. He was one year younger (than the other children). And especially, we had a news-quiz every week, and he nearly matched my score..."* *"He was just like that, whatever the topic he was an expert, and this is when you ask yourself; how does someone acquire that much knowledge? And he was also very good, academically."*)

(in relation to class-mate in high school) *"Han liksom fikk 5'ere og 6'ere, og det var sånn, ja.. han yta vel kanskje 80, 85 %, men han måtte ikke presse seg maksimalt. Han hadde stort potensiale, og, ja, han var helt fantastisk. Så han var ekstrem."* (*"He kinda got 5'ers and 6'es, and that was like, yeah.. He probably worked at about 80 or 85 %, but he never had to push himself to the max. He had a large potential, and yeah, he was just brilliant. So he was an extreme case."*)

Rob applied the term giftedness in two different, even though concurrent, manners. One was very much aligned with the aforementioned conceptions; a gifted child is someone with exceptional capability, who will go beyond children who are not gifted in that area, but have achieved high ability through practice. *"You can learn to a certain extent. If you play the piano; if I practice all the time, I would get to a certain- quite a high, stage. If you're gifted, they'll go beyond that. And talented. Your talent takes you."* *"Application takes you so far, talent takes you the rest."* Rob also believed that every child had a gift, which could be understood in terms of a stronger side; it did not necessarily mean the child was of exceptional capability relative to other children. *"I firmly believe that everyone of us has got a gift, whether it's just being nice – even just being nice to another person, that's a gift. Making people feel welcome, and everything, that's a gift."*

The last 2 Norwegian teachers who believed in the concept of giftedness, Bjørn and Tove, applied different meanings to the word than the general views mentioned above. Bjørn reckoned it was related to knowledge. Gifted children excelled in terms of his own definition of intelligence; they possessed a lot of knowledge, knew how to acquire new knowledge, and how to apply it in practice. He reported being open to the idea that some people might be born with slightly different genetic set-ups, more specifically neuro-paths that eased the execution of certain tasks, which would be helpful mainly in relation to sports and music. In relation to intellectual capacity, Bjørn mainly emphasized the role of creative thinking and the ability to visualize, which he believed was largely dependent on training and environmental stimuli. *"Eg vil si at enkelte er født forskjellig. Når det gjelder nervebaner. Eller gjerne hvilke ytre stimuli man er utsatt for når man er liten. Ehm. Begynner man veldig raskt å spille fiolin, for eksempel - det e en veldig krevende ting å bruke disse her fingertuppene - så trener man samtidig de nervebanene."* *"Det e noe man trener, og samtidig er det noe man e medfødt."* *"Akademisk begavelse? Der vil eg komme inn på det med kordan du visualisere*

*kunnskap, igjen, og kordan du har Dave deg sjøl til å visualisere kunnskap.*" ("I would say that some people are born different. When it comes to neuro-paths. Or possibly the outside stimuli you are exposed to as a child. Ahm. If you start playing the violin at a very early age, for instance - it is a really demanding thing using these fingertips of ours - then concurrently you will be exercising those neuro-paths." "It is something you practice, and it is also something you are born with." "Academic giftedness? Then I will return to how you visualize knowledge, again, and how you have taught yourself to visualize knowledge.") Even though Bjørn hinted at innate talents through different neuro-paths, he expressed views that giftedness, especially in academic areas, was not innate; a child could potentially become gifted through training and experience.

Tove seemed to encompass both of Rob's beliefs about giftedness within her view. Like him, she felt that every child had a gift, or a "stronger side". In her view, this was largely due to genes, while the environment played an important role in encouraging children to identify and develop their specific gifts. It seemed like she believed the gifts of some children developed into exceptional abilities, partly due to environmental stimulation, and partly due to genetic set-up. Tove related a number of examples of gifted children, mostly in artistic areas like song, dance and poetry. *"[Jeg har] en kjempespennende kurdisk jente som nesten ikke kan lese, men som er en gudebenåda malerinne. Hu maler de mest fantastiske, utrolige bilder."* *"Jeg har ei jente som er en fantastisk danser. Og det med hu også er at hu kommer fra et miljø hvor de danser. Så hu har helt sikkert fått interessen, og fått opplæringa, men er spesielt, utrolig god."* ("I have] a very interesting Kurdish girl who can barely read, but her painting skills are bestowed from the Gods. She paints the most wonderful, amazing pictures." "I have a girl who is a fantastic dancer. And the thing with her, again, is that she is from an environment where they dance. So she has definitely gotten the inspiration, and the training, but at the same time she's just especially, unbelievably skilled.")

Two teachers (1 in Australia and 1 in Norway) reported they did not believe in giftedness at all. Dave struggled with the concept, and did not seem able to reconcile the idea of giftedness with his general beliefs about learning and development. He believed that children were born more or less like blank sheets of paper, in terms of intelligence, and their further development was mostly due to environmental factors. Dave emphasized the role of the right nutrients and whether a baby was sick in the first six months after birth, as some factors to explain why certain people seemed to do better than others. *"That's a hard debate, but I'd have to be on the side of no. It's your surroundings. Yeah, you're not just born, gifted..."* *"Just, you know, environment, the food you're eating in the first 6 months, and even sort of if you're sick or whatever, as a little baby. I don't know what diseases you can get; [it] wouldn't really help."* Solveig assumed giftedness had something to do with being lucky, with having received something that made learning easier, but emphasized

that she had never used the word, and did not think of her students in such terms. She joked that the correct thing for her to say would be that "all her students were gifted"; indicating her awareness that there were certain "politically correct" beliefs in the Norwegian educational context. *"Begavet... Da tenker jeg å være litt sånn heldig, jeg."* *"Da skal jeg jo si at alle elevene mine er begavede (ler). Vet du hva; jeg har ikke tenkt på elevene med det ordet. Nei."* (*"Gifted... That makes me think of being lucky."* *"I should say then that all my students are gifted (laughs). Do you know what; I have never thought of the students in those terms. No."*)

The last four teachers (3 in Norway, 1 in Australia) were undecided on the topic. They all felt giftedness was related to an ease of learning; someone who achieved at a high level without having to put as much effort in as others. While they did not rule out the possibility of genetic influence, they all emphasized the important influence of environmental stimulation on children learning and development. Three of them thought there might be an impact by environmental influences on giftedness. Sophie, working in Australia, noted how she had never known of a child who had demonstrated gifts or talents at an early age, indicating she was unconvinced "giftedness" was due to genes alone. While she had personally never encountered any gifted children, she assumed there "must" be some who were, given the accounts she had heard. *"See, I haven't come across anybody that's had such a great talent at such a young age. That can read or can, you know, you see them prodigies on TV. Obviously, there are students like that, that are born.. but I haven't experienced it, no."* *"But is it gifted, or is it just, you know... What's the difference? Are we defining gifted from somebody who is just, highly intelligent?"* Line, on the other hand, reported having taught at least one gifted child. She felt it was obvious that some children worked at a higher level than others, but would not automatically ascribe that to genetic influence alone. Along the lines of Sophie's thinking, she noted she had never encountered a child who could be termed gifted who was from a "poor" home or background, and emphasized the importance of parents' expectations on a child's performance. *"Det er jo helt åpenbart, at noen barn er jo.. Du kan fore dem og fore dem, og de får aldri nok, mens andre har... - de stopper gjerne."* *"Men igjen så vet jeg jo ikke hva man har oppmuntret til når man var små. (..) Hva får du ros for, når du er 3 år?"* *"Jeg har ennå ikke møtt barn som kommer fra veldig dårlige forhold som (..) kan oppleves som begavet i skolen."* (*"It is obvious, that some children are... You can challenge them and challenge them, and they will never get enough, while others... - they tend to stop."* *"But then again, I don't know what encouragement has been given when they were little. (..) What are you praised for, as a 3 year old?"* *"I still haven't met children from very bad environments that (..) can be perceived of as gifted at school."*) Nina, like the other two, reckoned there were some students that seemed to learn easily, without exerting much effort. At the same time, she felt it was hard to determine whether these tendencies were mostly due

to innate ability or environmental influences. Like Sophie, Nina put in question the impact of the environment during the early years, before school-age was reached. *"Kanskje det ligger noe i bunn hos oss, som gjør at det faller riktigere på plass. Altså, man må liksom ha knagger å henge ny kunnskap på."* *"Det synes jeg er så vanskelig å si. Fordi at, det er jo så langt livsløp hvor de er, helt fra de er små - hvis de hele tiden har blitt backet opp, nøret oppunder og foret... Så, er det ikke så godt å si, hva som er bare medfødt og hva som er..."* (*"Maybe we have an underlying thing, that makes things fall into place better. I mean, you kind of need pegs to attach new knowledge to."* *"I think that is really hard to say. Because, I mean, there is such a long lifetime where they are, right from when they are little – if they have been constantly supported, nurtured and challenged... So, it is hard to say, how much is just innate and how much is..."*)

The last teacher, Hedda, believed gifted children were children who achieved or performed at an exceptional level. While she expressed beliefs that some students had to exert less effort, and were innately more predisposed than others to learn, she seemed uncertain whether or not to include these children within the concept of giftedness. When asked whether she had taught any gifted children, Hedda struggled to form her response. Along the lines of Solveig, she felt she should respond "all children", althwhile feeling that was not quite the case: *"Begavete elever!? Men også da, da utfordre du meg litt som pedagog, da. For e lik åsså teinke at æille barn har liksom sin gave, eller har noe som er sin begavelse da. For at e tenke at æille har, det e liksom, det e en kime til nåe du kainn utvikle i æille. Så derfor så, da har e lyst å svare æille. Så, det blir ikkje riktig det heill."* (*"Gifted children? But then, now you are challenging me as a pedagogue (teacher). Because I like to think that every child has their gift, or something which is their giftedness, you know. Because I think that everybody has, that there is, in a way, a grain of something you can develop in everyone. So then, I would like to respond everyone. So, that's not quite right, either."*) Hedda responded that she felt challenged by the question, and came across as eager to convey a positive attitude in terms of her beliefs in childrens' potential for learning and growth. It was hard to get a definite sense of her beliefs about the concept giftedness. She did relate how she had noticed that students who performed well across many academic areas seemed to have a specific, playful attitude to learning, an attitude shared by their parents. Hedda thus repeated her earlier expressed beliefs in the importance of attitude and motivation on achievement.

### 5.2.6. Discussing giftedness in Norway and Australia

In relation to teachers' responses to questions 19-22, most of the Norwegian teachers (6 out of 8) seemed to think giftedness was a relatively controversial topic in Norway. 6 out of 8 teachers reacted to the word "giftedness" somehow; a common response was that it was a term they had never themselves used, and several of them commented it was foreign to them

or seemed old-fashioned. While this might point to the inadequacy of applying the term in a Norwegian educational context, it seems likely this issue is not so much one of choosing the wrong term, but rather of discussing a concept which is not regularly addressed in educational contexts in Norway.

Nina: *"Det er ikke et ord jeg bruker mye. Men jeg skjønner hva det ligger innunder, men..."* "Altså det derre ordet 'begavet'; det ligger ikke så nært for meg." (*"It's not a word I use a lot. But I understand how it applies, but..."* "I mean, that word 'gifted'; it's a little uncommon to me.")

Hedda: *"Men i ordet begavelse, så ligg det på en måte – det e jo ikkje et nøytralt, verdi-nøytralt ord, da."* "Det e jo ikkje et ord de bruke så veldig ofte, nei." (*"But in the word giftedness there kinda is – I mean, it's not a neutral, a value-neutral word, is it."* "No, it's not a word they apply very often, no.")

Solveig: *"Jeg har ikke brukt det ordet, nei. (..) Så skal jeg jo si at alle elevene mine er begavete... Vet du hva, jeg har ikke tenkt på elevene med det ordet. Nei."* (*I haven't used that word, no. (..) Then I'm meant to say that all my students are gifted... Do you know what, I haven't thought of my students with that word. No."*)

Ulf: *"Begavet? Nei, for meg så er det gammaldags språk."* (*"Gifted? Nah, for me that is old-fashioned language."*)

While not all of them uneasy, like in some of the earlier examples, most teachers volunteered comments about how Norway in general or the Norwegian educational system in particular emphasized egalitarian values, especially in terms of equality of opportunity.

Stein: *"Jeg tru'kke det blir dyrka så veldig, i norsk skole, da. (..) Og skole-systemet i Norge er jo på en måte ikke... (..) Det er på en måte med på å fremelske den særegenheten hos enkeltelever da, at de får på en måte en sånn type sjanse... (..) Det er jo veldig u-norskt, da."* (*I don't think it's really cultivated in Norwegian schools, you know. (..) And the Norwegian school system kinda isn't... (..) In a way it's like encouraging the individuality of certain students, when they are given that kind of an opportunity... (..) You know, it's very un-Norwegian."*)

Ulf: *"Når du begynner å knytte biologi og arv til ting, så passer ikke helt det kanskje inn i likestillingsverdier, at alle har like muligheter, altså..."* "Så er det ikke alt jeg snakker med andre om, ikke sant. (..) For det å snakke om intelligens; mange synes det kommer veldig i konflikt med det likestillings-synet som det er i Norge, ikke sant. Og det er liksom sånn tabu." "Arv er liksom en tung byrde, da har du liksom ikke, du ha'kke alle mulighetene." (*When you start linking biology and inheritance to things, then it might not really fit with the views of equality, that everyone has the same opportunities, you know..."* "Then again there aren't all things I talk about, you know. (..) Because talking about intelligence; a lot of people feel it is very much in conflict with the view of equality in Norway, you know. And that it kinda like 'taboo'." "It's like innate ability is a heavy burden, in a way, you don't really, you don't have all the possibilities then.")

Line did not react to the word giftedness, and it seemed evident that she had come across the term during her studies. She did feel, however, that the modifiability of intelligence might be



a controversial topic in Norway due to the egalitarian values in the Norwegian schooling system and general society: *"I Norge så er jo... Hvis man spiller spill så, det viktigste er å delta, ikke å vinne!"* ("In Norway it's like... If you play a game then, the most important thing is to parttake, not to win!") Norway, she argued, had an identity as a society where no-one was left behind, thus a lot of resources were put into pulling the weaker children along in schools. She reckoned the reason high achieving (or gifted) children were not addressed in the Norwegian setting might be because there was neither desire to identify them nor the means to cater for them if they were identified: *"I og med at vi ikke har ressurser til å ta oss av de superflinke, (..) så mye av ressursene våre går jo til å hjelpe de som henger etter, sånn at vi... (..) Det blir kanskje sånn beskyttelsesstrategi, at man ikke ønsker å... få disse superflinke."* ("Given that we don't have the resources to cater for the exceptionally good, (..) such an amount of our resources are spent on helping the stragglers, so we... (..) It might be a kind of a protection strategy, that one doesn't really want to... have the exceptional ones.") While attuned to these seeming controversies, Line herself seemed comfortable in her beliefs, and at ease discussing all the issues throughout the duration of the interview.

Tove also seemed comfortable and unaffected by the topic giftedness. She did not react to the word nor indicate she felt the topic was controversial. This is interesting in itself, given that Tove was the only Norwegian teacher who strongly believed that every child had a gift. With her particular understanding of giftedness, egalitarian values of equality of opportunity were not in the least challenged by this belief; Tove could comfortably hold on to her beliefs about giftedness without breaching with ideas of equality of opportunity. Indeed it seemed like, to Tove, discussing giftedness was like a celebration of all the (wonderful) potential, too often untapped by "normal schooling", she felt was inherent in every child: *"Jeg har en 5.klasse jente som er utrolig flink til å skrive, skriver dikt så du får tårer i øya, liksom... Mens, der er det liksom, omgivelsene, lærer'n veldig opptatt av at hu har gjort leksene sine så nøyte og, jobber liksom ikke orntli' med rettskrivinga, og... Altså, vi gjør noe med vårt fokus!"* ("I have a 5th grader who is an amazing writer, she writes poems that draw tears to your eyes... But then, her environment is kinda, her teacher is very concerned about whether she's done her homework diligently, and, she's apparantly not working "properly" with her spelling, and... What we focus on has an effect!")

In contrast to the majority of the Norwegian teachers, none of the teachers from Australia displayed any unease discussing the concepts of giftedness and intelligence. While a couple of the Australian teachers, namely Troy and Sophie, weren't really convinced by the idea of giftedness, they both seemed comfortable enough discussing the subject. Like the teachers in Norway, the Australian teachers were at times uncertain and confused when figuring out their

responses. Only one of them, however, James, indicated any degree of dislike of the subject giftedness. He was quite comfortable discussing the issue of talents, however, and seemed equally at ease talking about this topic as he was for the duration of the rest of the interview: *"Especially in my line of work, you can see that some children are - they've got a particular talent in a certain area. And... I don't like the word gifted, but, you know, some kids definitely possess more skills, or, talent in one area, as compared to another."*

### 5.2.7. How to deal with low performance

Questions 12 to 18 in the interview guide were related to teachers' reactions in relation to students' performance. When asked about **how they would react** to students who were performing below what the teacher expected of them (question number 15), nearly all the teachers (7 out of 8 in Norway, 6 out of 8 in Australia), unprompted, emphasized the importance of context. Before they could decide upon the most adequate type of feedback, the teachers needed to establish what was going on. Some of these teachers mentioned specific potential problems, indicating what they thought would be the most likely reasons for childrens' low performance. Some of the teachers emphasized more than one potential reason.

8 teachers, 4 in Australia and 4 in Norway, emphasized children's home situations as well as other outside factors. It was evident the teachers felt that childrens' performance at school would be influenced by their life outside of school, especially at home. Bjørn, for instance, would base his feedback on whether or not the children were "pushed" at home. He would generally do the opposite, feeling that one arena of high pressure would be enough. Victoria emphasized whether the child was healthy and happy, and said she might encourage the parents to do a physical test of sight or hearing when a child was performing badly.

Alice: *"Some times when they under-perform there could be some reason like home, it's not that they're bad or something, and you just sort of ask them, and talk to them... It's about having a good report with the kids."*

Gwen: *"Happy kids learn!"*

Ulf: *"Det kan være noe i tilværelsen hans som gjør at han, sånn, resultatene - klart når man merker det så må man prøve å finne ut hva er det som har skjedd, liksom. Er det at han ikke gidder? Men ofte er det, det har skjedd noe, i privatlivet, som gjør at skole-prestasjonene går ned."* (*"There could be something going on in his life that makes him, like, the results – obviously, when you notice that, you have to try and establish what's happened, in a way. Is it because he can't be bothered? But usually it is, something's happened, at home, that causes his school-performance to drop."*)

Victoria: *"If I have a child that isn't performing in any way in academic areas, I would have them have some sort of test. I'd look at why isn't this happening, is there something that I should, that I've missed or..? So, the first thing I always do is the physical test, you know, the eyes, the ears, and all those sort of things."*

5 of the teachers, 3 from Australia and 2 from Norway, emphasized effort; they wanted to find out whether or not the child actually did try his/her best. While Alice emphasized the home situation, she also felt that many students did not perform their best under test-situations, and reported thus not relying on tests alone for her assessments. Rob would base his feedback on effort; he would praise the children he felt had exerted maximum effort while encouraging others to do better still. Line believed that children whose performance went down were generally not putting in their best effort; *"Ofte har det jo med arbeide å gjøre."* *"Jeg opplever at de fleste som (..) scorer ett-eller-annet dårligere enn det jeg forventer, det er stort sett underlying."* (*"Obviously, it is often related to the work they put in."* *"I feel that most of my students who (..) achieve something-or-other worse than what I'd expected, it is generally from under-achievement."*) Along the lines of Alice, Nina mentioned the roles both of children's home situations as well as their in-class effort. Nina reported she would base her feedback on how much students' present performance differed from their typical performance-level.

It is worth noting how the kinds of concerns displayed by these teachers were often related to their underlying beliefs about teaching. Rob, for instance, believing some children might just not be able to perform any better, did not want to keep pushing them in that case. And Victoria believed under-performance was often due to undetected physical factors such as bad hearing, and thus emphasized health-screening when children seemed to be under-performing.

In terms of the teachers' **responses and feedback** in order to improve performance (questions number 13 and 15), most teachers (6 out of 8 in Australia, 4 out of 8 in Norway) said they would focus on specific skills. Most of these teachers (3 in Australia and 3 in Norway) specifically emphasized pointing out things the students were able to do, questions they had got right, or related skills they were good at, in order to motivate the students to work on the difficult parts. Amongst these, 2 teachers (Alice and Tove) did not really want to focus on the weaknesses at all, as they seemed to think that "strengthening the strengths" would have a positive impact on performance across other areas, too.

Dave: *"Generally, I'll go and ah, yeah be fairly honest with them. And just go back to the basics. Say if it's a maths' concept I'll just go and say, just talk through the adding and subtracting with numbers, you know, single digits, double digits..."*

Gwen: *"You've got to find something that those kids are good at.(...) A subject that they like, and you build on that."*

Alice: *"You try not to focus on the things that are not good, you try and focus on the good things. Coz it usually pulls them up the other way as well."*

In order to know what was going on in their students' lives, and/or which specific tasks they could succeed at and be praised for, several teachers (1 in Australia, 4 in Norway) specifically mentioned the importance of establishing relations with the students. Hedda felt knowing the students was important in terms of building motivation and relating expectations: *"Når du kjenner en elev, da, så kjenner du og vekstpotensialet i den eleven, tenke e. Du ser kor du må legge inn liksom trykket i forhold til motivasjonen, og kor du kan si at (...) 'Jeg har trua på at du skal klare dette her.' Og med litt hjelp, sant, at du får litt støtte, litt hjelp, så strekker du deg lenger. Samtidig at je har heilt tydelige forventninger. At e krever en innsats; det kjem ikke ta seg sjøl."* ("When you know a student, then I believe you also know the potential for growth in that student. You can see what you should focus on in terms of motivation, and where you can say (...) 'I have faith you are going to succeed at this.' And with a little help, you know, a bit of support, a little help, you apply yourself more. While I also have very clear expectations. That I demand some effort; it is not going to happen automatically.") Stein and Ulf in addition felt that children invested more in the tasks if they had a relationship with the teacher. Stein: *"Man må på en måte prøve å ha en slags sånn dialog med enkeltelever hele veien, da, sånn at man veit hva som rører seg, og sånn. Og veit, sånn at de også skjønner at du, jeg veit hva som bor i dem, på en måte; og da forventer jeg at de presterer det. Det er jo på en måte målet, da, atte de, at de hele tiden skal prøve å vise meg at de kan prestere godt."* ("You kinda need to attempt to have an ongoing dialogue with individual students, in order to know what is going on, and stuff. And to know, so that they too understand that you, I know what they can do, in a way; and I expect them to perform accordingly. That is kinda the goal, that they, that they continuously try to demonstrate to me that they can do well.") Another 2 Norwegian teachers mentioned, like Hedda and Stein, the importance of communicating specific expectations to the students.

Another concern was to establish whether the teachers would give the **same type of feedback** to students of perceived high and low ability when under-performing (question number 16). Most of the teachers (7 out of 8 in Norway and 4 out of 8 in Australia) seemed to differentiate their feedback according to individual goals and behaviors related to effort rather than whether they perceived the child to be of high or low ability. Out of these, several teachers (1 from Australia and 4 from Norway) explicitly related that they would provide the same type of feedback, irrespective of childrens' typical performance levels.

Victoria: *"The thing is, you're always praising children for what they can do, to the best of their ability. Not to.. So, he would get the same praise from me as someone who was- doing something completely different."*

Stein: *"Jeg ville behandle vedkommende på samme måte. Men det er jo kanskje enda viktigere å ha en dialog med dem underveis."* ("I would treat the person in the same way. But having an ongoing dialogue is possibly even more important.")

Bjørn: *"På samme måte. Begynner med å spørre rett og slett."* "Det eg gjør e at eg setter meg et mål på kor e vil ha den eleven, og ut i fra den standarden eller det målet, så vil eg gi mine tilbakemeldinger til elevene." (In the same manner. Start by just straightforward asking." "What I do is I make goals for where I want that student, and based on those standards or that goal, I will give my feedback to the students.")

The other 6 teachers also seemed inclined to provide feedback on the basis of individual goals and effort, but did not state this explicitly. Sophie emphasized, in relation to children of all levels, to develop their awareness of themselves as learners, through encouraging them to consider their relative strengths and weaknesses: *"And then say to children 'well, where are your strengths and weaknesses?' (..) So we're getting children to articulate; 'what is it I can do, what is it that I need to do, alright - so how do I know I've done that?'"* Like Bjørn, Line said she would base her feedback on the goals she had set for each individual student, and emphasized the role of enactive mastery for children of all levels. *"Alle unger vet jo egentlig at hvis de øver, så får de til ting bedre. Over tid."* ("At heart, all children know that if they practice, they will get better at things. With time.") She also related how she believed that children who experienced a lot of failures might likely lose motivation: *"Hvis du hele tiden opplever å lykkes, så er det ikke så farlig om du går litt ned, for du vet du kommer deg opp igjen. Men hvis du, ofte opplever at du ikke lykkes, og så går du enda lenger ned, så, de mister på en måte helt motet, tror jeg."* ("If you generally experience success, then it is not really a big deal if your performance goes down, because you know you'll get back up again. But if you repeatedly experience failure, and your performance stoops even lower, then, I believe they lose heart completely, in a way.") Thus, she would generally have different goals for students; if the student was at the lower end of the spectre her goal would be to lift them "back up" again, while she would try to push students at the higher end as far as possible.

4 teachers, 3 of them working in Australia, displayed tendencies of being disinclined to push students of perceived low ability. While Nina explicitly stated she would give similar feedback to students of high and low ability (see above), she seemed, like Line, to be wary of a tendency to "give up" among students at the lower end. She reported she might be less inclined to look for an outside reason if the under-performing student typically performed badly, and that she might not push these students as much as others: *"Det ville jo vært den samme type feedbacken. Men hvis ikke differansen i forhold til hvordan de pleier å gjøre det hadde vært så stor, da, så*

*er det kanskje ikke så gitt at jeg ville fisket etter hva som var grunnen." "Gir de litt mer slack, ja." ("It would be the same type of feedback, of course. But if the difference between their usual performance level wasn't very great, it might not be a given that I would go 'fishing' for a reason." "Give them a bit more 'slack', yeah.")*

The 3 Australian teachers all demonstrated how they believed children of high ability, some times termed "gifted", had special needs, and should be given differential treatment compared to children of low ability when under-performing. Gifted children were perceived to enjoy challenges and freedom of choice to a larger degree than their peers, whileas children toward the bottom end of the performance spectre were deemed likely to give up when they were pushed. The teachers emphasized the importance of providing challenges and giving freedom of expression to children of high ability, while not injuring self-esteem in regards to children of low ability. Thus, feedback to students of perceived higher ability (if they had performed substandard) might include questions as to 'what had happened', communicating the teacher's (high) expectations of them, freedom to divert and incorporate their personal interests in school tasks, and general encouragement to push themselves further. The children of perceived lower ability, on the other hand, might receive detailed help on tasks, were likely to be encouraged not to compare themselves with the other students, and would receive praise on 'every little effort' they made. The teachers emphasized not to injure these students' self-esteem, or make them feel bad about themselves. To that effect, the teachers demonstrated an inclination to let the lower achieving students "off the hook"; like expressed by Rob, they did not want the children to feel as if their bad performance was their own fault through lack of effort.

Rob: *"If you have a child who is not, ehm, intelligent, and you push them, and they don't get the marks, it can affect them as well. Your expectation can really drag them down, and could give them a low self-esteem, of themselves. Because then you are pointing the finger at them and saying 'Its you, who is not doing it'. So you've got to be very careful."*

James: *(Regarding children of high ability) "Take them aside and, explain what my expectations are, and, you know, you don't think that they are working to their best ability. Maybe also it might mean that they are not being challenged enough in what they're doing. (..), I provide them with some work that would challenge them a little bit. Make sure that it is something that they are interested in." (Regarding children of low ability) "Let's be realistic, some of those kids aren't gonna be brain surgeons." "I would try to be as positive as I can with them, and not put them down. You don't want to destroy their self-esteem, or make them feel bad about what they've achieved, or what they haven't achieved."*

Along the same lines of several of the previously mentioned teachers, Ulf believed that many children who typically performed badly grew weary of failure. Like the Australian teachers just mentioned, Ulf related that these children were often disinclined to push themselves, for fear of yet another failure. Furthermore, he also responded that he would be inclined to look for outside reasons, such as boredom, when children he perceived to be of high ability were underperforming: *"Jeg må jo prøve å finne ut - det kan jo være at han kjeder seg. Det kan være noe i tilværelsen hans som gjør at han, sånn, resultatene..."* ("I do have to try and find out – he might be bored, you know. There could be something going on in his life that makes him, ahm, the results...") Unlike the aforementioned teachers, however, Ulf demonstrated perceptions that extra, specific, efforts (such as remedial programs in mathematics) aimed at low-performing students would lead to tangible results. *"Og den skolen jeg jobbe på i ..., de gjorde jo delvis sånn, i matematikk, da. De fant ut at hvordan de lå an på – altså de plukka delene fra hverdandre; 'hvor trenger vi styrking?' Og resultatet ble at de gjorde det bedre. Men jeg tror også, ungene med karakterer, det er litt sånn psykisk. Altså du har fått så mange knekker så orker de ikke, og du klarer ikke gjøre den hele jobben alene. Men får du støtte på del-områdene, så er det lettere. (..) Bryte ned måla; når det er konkret da er det lettere å se det."* ("And that school I worked at in ..., they did it like that in a way, in mathematics. They established how they were doing in – I mean, they broke it all down; 'where do we need to strenghtening?' And the end result was that they did better. But I also believe that, the kids and grading, it is kinda psychological. I mean, you have experienced so many downs that they are weary, and you can't do the whole job by yourself. But if you are given help in the different areas, it becomes easier. (..) To break the goals down; when it is concrete it is easier to spot.") As such, while he too spoke of the challenge of getting students of low ability to believing in themselves again, Ulf demonstrated no disinclination towards pushing them. At the same time he emphasized the importance of providing assistance through establishing clear goals and helping the students with specific tasks.

It was difficult to determine the attitude of the last teacher on the issue of differentiated feedback. Gwen emphasized the importance of building childrens' self-esteem through focusing on tasks they could succeed at. She demonstrated great emphasis on the importance of "loving along" all children: *"Building their self-esteem, and just telling them that they're wonderful!"* While at other times during the interview Gwen demonstrated beliefs that some children were gifted and had special needs, she did not indicate that she would differentiate her feedback between these students and students of perceived lower ability.

### 5.2.8. Influences on beliefs

When asked what they thought had been the biggest influence on their own beliefs about education and intelligence (question 31, as well as questions 25 – 30), many teachers gave several responses. The two factors that were mainly emphasized were family and professional experiences.

Most of the teachers (6 teachers in Australia, 5 teachers in Norway) responded their **families** had been the biggest influence. Around half (5) of these teachers expressed relative certainty that they shared their beliefs about intelligence with the members of family in question, while the rest were a little unsure, but felt it was either likely or possible. Either way, the teachers related beliefs that their families and their family life had taken part in shaping themselves as persons as well as the beliefs they held. 4 of the teachers (2 in Australia, 2 in Norway) mentioned either one or two close relatives who were also teachers, who had had a specific influence on them.

Alice: *"My family, my mum. I think, basically, is the biggest influence, yeah. Still is."* *"I think my mum, my mum would, especially with the IQ things, she would believe that the social part is really important. I think I've got that from her, obviously, as well."*

Rob: *"I, my thinking, has been affected by what my parents have - how I've been brought up myself."* *"We are products of our families so much."*

Gwen: *"I am my mother - or I wish I was... No; I aspire to be what my mother was!"*

Line: *"Jeg hadde en tante, som var lærer. (..) Hun utfordret meg hele tiden, i forhold til tankesett og sånne ting."* *("I had an aunt who was a teacher. (..) She continuously challenged me, in relation to my thinking and those kinds of things.")*

Hedda: *"Du blir litt det du e født inn i, på en måte, altså."* *"Eg kjem frå et hjem der det akademiske var positivt, ja, absolutt."* *("You do become what you are born into, to a degree, you know."* *"I come from a home where academia was valued, yeah, absolutely.")*

8 of the teachers (4 in each country) felt **professional experiences** while teaching had influenced their beliefs to a large extent. The teachers expressed that their teaching experiences with children had mostly served to reconfirm beliefs they already held, for example in the case of Christina, and in some cases taught them new things, as expressed by Solveig.



Christina: *"I think, as a teacher, you should, believe in, that it's both nature and nurture. (...) You have to maintain that there is both, 50 – 50." (In regards to classroom experiences and existing beliefs) "Yeah, reinforced and, what's the word, yeah, justified. The sort of 'I think this, and yes, that's the case!' you know..."*

Solveig: *"Nei, du kan vel si at det tok vel egentlig lang tid før jeg tenkte over at man kanskje, kunne forandre seg mye, og forandre mye ved å jobbe med det, ja. (...) Så det er vel egentlig denne jobben her, og i barnehagen også, som jeg jobbet før, at jeg har lært at det er jo utrolig mye du kan gjøre da, ved å velge noe du synes er bra, og prøve å få det bra til." ("Nah, you might say it took a long while before I considered the possibility that one possibly might, might change oneself a lot, and change many things by working on them, yes. (...) So I guess it's really this job, and also in kindergarten, where I worked earlier, that I've learnt there really are a lot of things you can do, through picking something you think is good, and trying to do it in a good way.")*

Stein also emphasized the role of professional experiences, albeit not referring to teaching experiences. He felt that through other types of work experiences and the people he had met in these different jobs, as well as generally growing up, he had reached a point of maturity. *"Jeg veit med meg selv at på et eller annet tidspunkt så skjedde det en holdningsendring hos meg. (...) Det kom i det stadiet da jeg holdt på å bli voksen." ("I know in myself that at one stage or other, I experienced a change of attitude. (...) It happened around the time when I was about to become an adult.")* At this stage he had realized he wanted to work within teaching, and he felt like a lot of his assumptions and beliefs changed in favour of his present views.

5 teachers (3 Australian and 2 Norwegian) recalled **childhood schooling experiences** which had been influential to them, either in terms of their self-concept and/or in terms of their teaching practices. Victoria and Sophie both recalled classrooms where children were ability grouped and labelled according to their perceived ability level. The focus was on providing the correct answer, in other words there was no room for trial and error. Both teachers related how these experiences influenced their teaching practices to this day. Rob had been in several ability grouped classes, and had experiences of being the "slow" kid, with which he still seemed to identify to a certain extent: *"Yeah, I have to apply myself a lot more than others." "I was never thought of as, yeah... (intelligent)."* Hedda felt experiences from her childhood had not served to form explicit beliefs, but as a starting point, or a foundation, on which she later formed her opinions. Ulf remembered specific experiences which he felt had influenced his beliefs in a more explicit fashion. He related how the fact that certain children in his class, who did not have the 'right' backgrounds (in terms of family support and stimulation), had still excelled at school, had made him realize that people were born with different capacities: *"Det var ikke no' sånt som sku' skille seg ut. Så sann sett, vitenskapelig så sku' en tro at at liksom alle skulle gjort det like bra, omtrent. Men, det va'kke sann det var!" ("There wasn't anything that was meant to stand out. So in that sense,*

*scientifically, you would think everyone should have performed equally well, you know. But, that wasn't the reality of it!")*

2 of the teachers mentioned the role of their **personal backgrounds**, in terms of where and when they grew up, on their beliefs. James had grown up in a working-class family that had placed little expectations on him. This had influenced his beliefs; everyone had a chance to rise 'from rags to riches', no matter what their background: *"The fact that I've gone from a really poor area, you know (...) And then coming here, which is, you know, definitely a lot more affluent than where I was before. I've seen sort of both ends of the spectrum."* *"That's what's probably guided my ideas the most, on intelligence."* While emphasizing that she had been influenced by many factors, Tove mentioned how growing up in the 70's, and the liberal and free thinking of that time, had influenced her as a person and an educator: *"Jeg er jo forma av tia jeg vokste opp i, det er klart!"* (*"I'm influenced by the time I grew up in, that's obvious!"*)

Looking at the teachers' responses (with reference to questions 25 – 31; influences on beliefs) it seemed likely that the teachers' beliefs were some times influenced by **factors they did not mention explicitly** when asked, that were nevertheless prominent in examples throughout the interview.

These factors were mostly family and/or personal backgrounds as well as childhood schooling experiences, as exemplified by Nina, Bjørn and James. Nina's mother worked as a teacher, and Nina reported feeling like she shared her beliefs and opinions to a large degree. This was largely based on their shared pedagogical way of thinking, which put teachers aside from many others, for instance Nina's own friends, in terms of beliefs: *"Jeg har ganske inntrykk av at en vennegjeng som ikke har pedagogisk utdannelse og.. - kan bryte litt i min tankegang i forhold til at de kan være mer svart-hvitt... (...) 'Du er smart, du er dum.'"* (*"I have a pretty strong impression that a group of friends who do not have a pedagogical education, and.. – might be a little at odds with my way of thinking, in that they might be more black and white... (...) 'You are smart, you are stupid.'"*) It seems likely that her mother had imparted, implicitly or otherwise, some 'pedagogical' ways of thinking during Nina's upbringing and childhood.

Along the same lines, Bjørn, who placed a lot of emphasis on the value of knowledge, on curiosity and free thinking, related how he'd come from a home which valued school and knowledge. His parents had placed importance on his grades, but maybe more importantly also on his ability to discuss and "defend" them: *"Ja, karakterboken vil eg si ble diskutert noen*

*ganger. Eh, men eg vil si at, de tillot meg også å komme med innspill tilbake igjen, så eg vil ikkje si at det var kun resultatene som var viktig, men det å, i samtale om resultatene, å komme med grunner til korfor, dette hadde skjedd.” (“Yes, I would say my grades were discussed a few times. Ahm, but I would say that, they allowed me to contribute my opinions as well, so I wouldn’t really say it was only my grades that were important, but to be able to, while discussing the grades, come up with reasons for why, this had happened.”)*

James told of negative experiences with labelling during his school-years. Children had been ability grouped according to their intelligence, and he felt this had had the effect of leading children to live down to negative expectations, in some cases. James felt children’s self-esteem was influenced by what class they were put in: *“You were placed in classes according to your intelligence.” “I was in the higher classes so you feel better about yourself.”* Furthermore, James told of a teacher in mathematics that had put him down and criticized his work in harsh words. James recalled the negative effect this had had upon him, and that he did not pursue mathematics further. We see in James’s responses indications that his schooling experiences had likely influenced both his views on positive classroom behaviors as well as his learning strategies and later self-perceptions in mathematics.

### **5.2.9. Impact of teacher education**

Questions 27, 28 and 29, as well as question 31, probed the teachers in relation to the influence by their teacher training programs. In the same way that a few teachers, as mentioned, related experiences from the school-years that had influenced them in personal and/or professional ways, several teachers recalled experiences from their teacher education training that might have been influential. These experiences were generally less related to the programs as such, while the influences by specific mentors or professors were emphasized.

5 teachers (2 Australian and 3 Norwegian) recalled especially good teachers or mentors they had had during their teacher training courses, who had been influential on their learning and teaching (question number 27). Victoria related how she had worked with a very impressive teacher during her teaching practice, and still used the notes from this teacher at times. This teacher had been a great influence on her teaching practice, and someone she aspired to be in terms of her classroom management: *“She was one of the sort of teachers you thought ‘That’s how I want to be, that’s the sort of person I want to be!’ (..) And I often go back to her notes, that she took, she used to write copious notes for me, and I often go back and reflect on those.”* Ulf felt lucky to have had a good teacher in pedagogy, as he had heard tales this was not very usual for the program where he

was studying: *"Der var jeg også heldig. De dårligste lærerne var pedagogikk-lærerne, men vi hadde da faktisk en pedagogikk lærer som hadde jobba som lærer, så han hadde litt peiling på det han snakka om."* ("I was lucky in that, too. The worst teachers were the ped [pedagogy]-teachers, but we actually had a ped-teacher who'd worked as a teacher, so he kinda knew what he was talking about.") Alice had had great experiences with her practice teachers, who had influenced her classroom behaviors in several ways: *"My prac teachers were awesome, and they really, they really helped my idea of being a good teacher."* Alice did not have experiences with gifted education outside of her teaching practice, and related many of her beliefs back to how the teachers during her teaching practice had dealt with different situations. Stein, too, related how the teachings of his practice teacher still influenced his behaviors for certain tasks: *"Jeg hadde en veldig god praksis-lærer."* *"Den måten hun jobba på, det tenker jeg ofte på når jeg skal i gang med nye ting for eksempel."* ("I had a really good practice teacher." "The way she worked, I often think about that when I am about to start something new, for instance.")

Not all teachers related teachers or mentors that had been positive influences. Bjørn and Line both recalled teachers/ professors from their teacher training years whose teaching practises had left an especially bad impression on them. They had both felt that their own contributions to the classes had not been valued. Their teachers seemed to have had a 'traditional' transmission view on knowledge and learning (one where the knowledgeable teacher passes on information to the 'empty vessel', the student), and had not been open to questions or criticism. These experiences seemed to have influenced them in quite tangible ways. Both Line and Bjørn emphasized how, in their own teaching, they encouraged their students to think for themselves, and were conscious of taking both their students as well as their contributions seriously. Line: *"Der er jeg nok ganske god med elevene mine, de får lov å ha sine egne ideer. Det blir ikke sånn at de bare blir satt lokk på."* ("In that sense I guess I am pretty good with my students, they are allowed to have their own opinions. It's not in the way that their opinions are held back.") Bjørn was very conscious of how such experiences worked to influence his thinking in terms of role-models: *"Du har gode og dårlige forelesere, for eksempel, du har... og du husker de på godt og ondt! Så du brukar de som verdier på kordan du sjøl... kan være, eller vil være."* ("You have good and bad lecturers, for instance, you have... and you remember both the good things and the bad things! So you apply them as values for how you yourself... can be, or want to be.")

While these examples highlight how individual mentors, especially the practice teachers, were influential on some teachers' beliefs, none of the teachers had experienced reflective teaching courses, or been encouraged to reflect upon their beliefs in some way, during their teacher training programs (question number 29). 4 teachers, however, did report having previously

reflected upon issues related to intelligence (question number 30). Christina had investigated some of the issues during her undergraduate studies: *"We did a lot of nature - nurture stuff, and looked at all the theories, and, bits and pieces."* She also emphasized beliefs regarding effort and learning she had held since childhood. Victoria said she some times discussed issues regarding intelligence and talents with other teachers at school: *"We're always really excited when we talk about, you know, children that are showing particular intelligences in different areas, whether it be art or whatever, or music."*

Bjørn came across as very well read, and reported having reflected around topics like intelligence and learning previously, although not in the same way we had talked about them during the interview. Hedda said she felt the topics were familiar to her, but that it was hard to say at which stage they had been covered, given that she had continued her education after becoming a teacher. She felt these things were discussed regularly, but more in the sense of children learning in general, not intelligence in particular: *"Ja, det er slike ting en diskutere, tenke ej. Eller, altså – diskutere – akkurat det med intelligens... Ja, ka som e viktig innafor læring, det diskutere oss."* (*"Yeah, these are the kinds of things you discuss, I think. Or, actually – discuss – exactly in relation to intelligence... Well, what is important within the realm of learning, we do discuss."*)

During the interviews, the teacher education programs were criticised more often than not. And while many teachers felt professional workplace experiences had influenced their beliefs about education and intelligence, comparatively few reported feeling that their teacher training programs had been influential.

As a matter of fact, most teachers (5 out of 8 teachers in Australia and 6 out of 8 teachers in Norway) volunteered criticism towards the teacher education programs they had gone through. The main concern was how they felt there had been no clear, useful link between theory and practice. The teachers felt the theory taught had had little impact on them; it had seemed detached and of little practical use.

Alice: *"I didn't quite enjoy my theory as much, because I thought well I've learned all this theory, but when you put it into practice, a lot of the stuff - you can't actually, it proves to be - it's not do-able, some of the stuff. You have to do other things. And it's not - you can't follow these guidelines all the time, because the reality looks different. You've got so many kids and you can't always work by the book, or something, you know..."*

James: *"To be honest I didn't find much value in the university in my degree; I found that most of the things that I learnt probably were in my first six months of teaching. And then you learn on the job. A lot of what I learnt at university I found pretty irrelevant."*

Ulf: *"Mye av den teorien vi hadde i ped, ikke sant, du trengte ikke, altså; det var jo teorier fra, teoretikere, altså... Freud og Maslow og de derre. Det er helt greit å høre om dem, men altså, Piaget; greit nok jeg vet om det, men altså – jeg ble mer eller mindre bare forvirra, ikke sant. (..) Mye greiere om jeg ikke hadde hørt det, liksom."* ("A lot of the theory we covered in ped [pedagogy], you know, you didn't need, I mean; there were theories from, theoreticians, you know... Freud and Maslow and those ones. Hearing about them is fine, but really, Piaget; fine, I know about it, but really – I was more or less just confused, you know. (..) A lot easier if I had never heard of it, in a way.")

Finally, many of these teachers seemed to think they had been ill prepared to enter the field of teaching at the end of their teacher education training, and felt their training would have benefited from more practical knowledge in terms of relevant strategies for teaching and classroom management.

Rob: *"What you're taught at university, and what happens in the classroom, some times are different things."*

Line: *"Vi hadde jo ikke noe om læringsstrategier, en gang."* ("We didn't even cover anything on learning strategies.")

Solveig: *"Du kan godt tenke intelligens og fagplaner og alt, men du må faktisk håndtere de menneskene i den gruppa."* ("If you want you can think about intelligence and subject-plans all you want, but you do actually have to handle those people in that group.")

Ulf: *"Det æ'kke sånn at det er bare å komme inn, og så er det bare å helle på dem. Det er masse du som lærer må skape for å, asså skape et læringsmiljø. Holde orden, holde disiplin, lage forutsigbarhet, og det lærer du lite av på lærerskolen. Det er jo det du trenger!"* "Skal du ut i krig må du lære av noen som har vært i krig, ikke bare noen som har hørt om det." ("It's not like you can just walk in there, and fill them up. There is a bunch of things you as a teacher have to create in order to, well to create a learning environment. Maintain order, maintain discipline, create a predictable environment, and you don't learn much of that during teacher education. But that's what you need!")

4 teachers related neither positive nor negative impression from their teacher training programs. One teacher only, Tove, gave a mostly positive recollection of the teacher training she had undertaken. She had been happy with both her pedagogy and her praxis teachers, and felt the environment had been interesting and stimulating, while most of her subject-teachers had been 'awful': *"Vi hadde en veldig god, fin ped' lærer! Og mange fryktelige fag-lærere... Ja!"* "Vi hadde veldig dyktige praksis-lærere, så det var fint." ("We had a very good, nice ped-teacher! And many horrendous subject teachers... Oh yes!")

As a note, in relation to question 31 as well as questions 25-30 in the interview guide, the participants' responses indicated a polarization, where participants stated they had been

affected by either professional experiences or their teacher education (generally through a significant mentor). While several teachers chose to emphasize more than one influence on their beliefs, for instance childhood experiences as well as professional experiences, no teachers mentioned being influenced by both professional experiences as well as teacher education. It is possible that the feel of the interview created a type of interviewer effect in this respect, where teachers, due to a perceived time-constraint, chose to emphasize one or the other influence. However, given how the same teachers did not appear stressed, and were seemingly at ease discussing a variety of other influences, it might be more likely that the teachers were polarized in this respect, and felt that either the teacher training program or their professional experiences had been influential.

### **5.2.10. Inconsistencies in teachers' implicit and explicit beliefs**

Like indicated by the previous sections, teachers beliefs, as expressed in the interviews, were not always constant and straightforward. Some teachers were inconsistent in their responses, demonstrating different beliefs when asked explicitly about an issue to when they related specific examples.

2 of the teachers in Australia and 4 of the teachers in Norway demonstrated what might be interpreted as belief dissonance. Generally, they expressed a strong belief, perhaps related to personal experiences, that they had held for a long time, while another belief, perhaps related to teaching experiences, outside expectations or values of what either they or others considered "good" teaching practice, seemed to be juxtaposed against this. For most of these teachers, it seemed unproblematic alternating from discussing one to the other. Even when teachers did notice they were not consistent in their replies, this did not lead to retractions, rather, they seemed able to accept and quickly forget this. Belief inconsistencies seemed especially common in relation to the modifiability of intelligence, and to what degree some people might be born more intelligent than other.

Christina emphasized how she felt there was about a 50 – 50 % impact by nature and nurture on learning. She related that one of her earliest beliefs - she had had it for as long as she could remember - was that everyone had to try to do their best, and in this way had a chance to influence where they "ended up". Throughout the interview Christina emphasized the importance of environment and motivation: *"I've definitely always felt that, it's up to each person (taps*

*the desk for emphasis) to, you know, to make something of their lives, basically!" "I've always, as long as I can remember, held that belief, you know."* Simultaneously, she expressed beliefs that some people were born with exceptional capabilities, while some were born with less potential for growth. At one stage, she lowered her voice, seemingly "confiding" that not all children could succeed: *(lowers her voice) "I think, you know- some kids I should say, some kids aren't quite born with as much capacity to... - in normal schooling, you know, school activity."* This was contrasted by how she at another point related that it would be "tragic" if someone believed they could only develop to a certain degree, due to genes: *"If you were born and considered (..) 'I can only go this far' - I think that'd be tragic! We should all be trying to foster (..) what our talents are, what we are good at! (..) I think that's a really strong belief I've had right from, as early as I can remember."*

It seems like professional experiences (of children who did not progress much) had installed certain beliefs Christina held to in order to cope with the teaching situation. Believing that everyone could succeed might be too hard a strain for her to hold, especially while encountering "evidence" of the contrary. Simultaneously, she could not let go of some of her earliest, most basic beliefs, about the potential to develop for everyone. Christina thus seemingly compartmentalized her beliefs; all (normal) children had potential for growth, which was largely governed by environmental factors, while some (special) children were born gifted or especially slow, and their potential for growth was thus largely governed by genes.

James seemed to hold conflicting beliefs about whether or not every child could become really good in an area. When talking about how to encourage his students he related how he believed every child had the potential to succeed at a high level. At the same time, when he talked about gifts and talents in general, and his own schooling experiences, he portrayed beliefs that people were born to succeed in certain areas: *"I think some people are just predisposed to being (..) if you're a visual person, a visual learner, then you're gonna be more predisposed to being talented (..), I guess."* James seemed to base this assertion on his own experiences; he "knew" he himself had never been good at maths. Realizing the inconsistency led to a reiteration of his "contradicting" belief: *"I know in myself, I've always particularly struggled in some areas in mathematics, that's just something that I'm not very good at. So... ehm, I'm probably contradicting myself there, but... I mean, you're always gonna... Certain things you're gonna always be better at some things than other things, so..."* James later related vivid memories of how his mathematics teacher had put him down in maths (he was actually in one of the top maths classes), and how he had thus lost interest and motivation in the subject. One interesting thing to note here is how he maintained that his own



mathematical ability was definitely genetic, even as he recalled how classmates of his were labelled during high school, and consequently acted up to the expectations placed on them. Furthermore, he simultaneously related how he believed his feedback as a teacher was important to install beliefs of success in his own students.

Some of Hedda's responses (see sections 5.2.5 and 5.2.6) pointed to inconsistencies regarding whether some children were born gifted and some not. It seemed like she held two beliefs concurrently; the belief in children's potential for growth, and the belief that some children were born with a larger capacity than others. In relation to giftedness it seemed like these beliefs came in conflict with one another; her belief that everyone had (equal) potential to develop their "gifts" was threatened somehow by her belief that some children were born better than others. It is possible that her "potential for growth" belief stemmed from a more general attitude that she identified herself as someone who believed in equality of opportunity, as demonstrated by this comment: *"Eg håpe at eg uttrykte et positivt læring- ja, elevsyn. Og det tenker jeg er en forutsetning."* ("I hope that I expressed a positive view on learning – view on students. And I feel that is a prerequisite.") Hedda's beliefs about "gifted" children might have threatened her sense of identity, and could thus not be comfortably considered. It is interesting how she perceived this "threat", or challenge, as she termed it, to come from an external source (the interviewer), while her own conflicting beliefs were creating the sense of crisis.

Solveig displayed a pragmatic approach to her job, and seemed to think issues like intelligence and giftedness were too theoretical and philosophical to be of any use. A few of Solveig's responses portrayed that she seemingly found the topics of intelligence and giftedness irrelevant and unpedagogical. When asked about intelligence, she implied that she did not apply the concept or consider her students in such a manner. *"Det er jo ikke noe vi måler på skolen, eller bruker som begrep, eller sier – at det er noe vi skal ta opp på konferansetimer eller sånt no. Ikke sant. Det er jo egentlig et sånt ikke-begrep i forhold til pedagogikk."* ("I mean, it is not something we measure at school, or use as a concept, or say – that we will discuss during teacher-parent talks or something like that. You know. It is really one of those non-topics in relation to pedagogy.") Later on in the interview, however, she related how she would sometimes think a child was more intelligent due to the speed he or she worked at. *"Men du har jo noen som du tenker, hun er jo smart, hun tenker fort. Der går det veldig fort. Det hender man tenker det."* ("But then you sometimes think with some children, she is smart, she is a quick thinker. She works very quickly. You do sometimes think that.") While Solveig deflected the question of giftedness somewhat, given she did not like the word, she also did portray beliefs that children were born with different strengths due to genes. *"Da skal jeg jo si at alle elevene mine er*

*begavede (ler). Vet du hva; jeg har ikke tenkt på elevene med det ordet. Nei.*” *”Sterke sider er jo ofte medfødt, og så kan man jo hjelpe dem, eller, ikke hjelpe dem...”* (“*I should say then that all my students are gifted (laughs). Do you know what; I have never thought of the students in those terms. No.*” *”Strong sides are often innate, then we can choose to help them along, or not...”*) It is possible Solveig’s seeming dislike of the terms “intelligence” and “giftedness” left her unwilling to apply these words in her thinking about teaching and learning. At the same time she seemed to hold beliefs that in some ways were consistent with the popular understanding of these concepts.

Along the same lines, Nina portrayed somewhat inconsistent beliefs regarding whether some children might be born gifted. Nina emphasized the influence of early childhood experiences and ongoing support from home on children achievement, and seemed doubtful of the existence of gifted children at all. *”Hvis jeg skulle brukt ordet begavet om et barn (..) - det barnet har jeg ikke møtt i klassen ennå! (ler)”* (“*If I were to apply the word gifted to a child (..) – I have definitely not met that child yet! (laughs)*”) In relation to whether all children could achieve at a high level with the right input, though, she responded that children might need that little something “extra”, in terms of inborn talent, in order to achieve at the highest levels. *”Nei, jeg tror at du kan lære teknikker, og du kan alltid lære å bli ganske god, men det der å på en måte nå det siste hakket, kanskje du trenger noe latent i deg, for å bli ordentlig dyktig m tall, eller ordentlig dyktig med ord, eller form og farve.”* (“*No, I believe you can learn techniques, and you can always learn to the extent where you get quite good, but in order to kinda reach that last level, maybe you need something innate, to really become good with numbers, or really good with words, or within artistic areas.*”) This belief is in line with for instance Rob’ assertion that someone not gifted could become quite good through practice, but never quite achieve top performance level.

Stein, from the start of the interview, maintained he was all about the environmental impact, and felt children had equal opportunities. *”Jeg har i hvert fall som et utgangspunkt at vi har like muligheter.”* (“*At least, I have as a basis that we all have equal opportunities.*”) When asked explicitly about his beliefs regarding intelligence and giftedness, however, he demonstrated beliefs that were more entity aligned. An example of this is how Stein believed not everybody could become really good at every subject. *”Jeg tror egentlig at det er en sånn kognitiv, innebygd greie (..) - noen har høyere kapasitet enn andre.”* *”Jeg tror alle kan komme på et visst nivå, men jeg tror ikke alle kan bli kjempeflinke, i matte.”* (“*I actually believe it is one of those cognitive, innate things (..) – some have a higher capacity than others.*” *”I believe everybody can get to a certain level, but I do not think everybody can become really good, at maths.*”) Like James, he seemed to base this belief on his own experiences with mathematics, as he felt he had never got any good at it, despite trying. *”Jeg tror nok ikke at alle kan bli flinke i matematikk, for det at eh, jeg var aldri spesielt flink - og jeg prøvde!”* (“*I don’t really think*

*everyone can become good at maths, because, you see, ahm, I was never really good at it – and I tried!”)* Towards the end of the interview he commented that he felt somewhat “tricked” into answering in a certain fashion, supposedly into relating beliefs that were entity aligned. *”Jeg er i utgangspunktet veldig miljøorientert, da, men jeg føler jo på en måte at du fisker litt etter..”* (*”As a rule, I am very geared towards the environmental influence, you know, but I do kind of feel that you are fishing a little for...”*) This was somewhat surprising, given that the questions to which he responded with entity-aligned beliefs were explicit and thus high in face validity (not covert).

In an open discussion immediately following the interview, Stein reflected back on his feelings and responses. He reported that to some questions it had seemed to him that there was a hidden agenda, something that encouraged him to answer in a certain fashion. Stein also reported having felt eager to portray certain beliefs, and come across as “clever”. *”Da vi satt her i stad så får jeg litt sånn følelsen sjøl, ikke sant, atte du spør om ting, og for meg så er det så innlysende hva jeg har lyst til å svare, at jeg nesten føler at du fisker etter at jeg skal svare akkurat det, da. Men det er jo fordi atte jeg har den oppfatninga som jeg har.”* *”Når du spør, så har jeg lyst til å, liksom, man har gjerne lyst til å komme med noen skikkelige gullkorn, da, ikke sant- men det er jo egentlig ikke meninga, du er ute etter min oppfatning...”* (*”When we sat here earlier, I get this feeling myself, you know, that you are asking about things, and to me it is so obvious what I would like to respond, that I nearly feel like you are fishing for me to answer that. But then that is because of the beliefs I have.”* *”When you ask, I kind of want to, you know, you kind of feel like really giving a good answer, you know – but then that is not the point, is it, you want to know what I believe...”*)

While it cannot be ruled out that there had been an interviewer effect (see 5.3), it is also possible that Stein felt uncomfortable when realizing the beliefs he were expressing throughout the interview did not support, and furthermore conflicted with, his “equal opportunity” stance. It seems likely that Stein largely identified with being a teacher who held incremental beliefs. Like Hedda, he perceived this seeming “threat” to the balance of his belief system and his perception of identity to be external.

### **5.2.11. Teachers’ life stories**

One tendency that emerged from the interviews, as exemplified through the previous sections, was how participants’ beliefs often were attached to specific events or experiences, particular to the lives of each teacher. Moreover, these beliefs seemed part of a complex ecology of interrelated beliefs. This ecology of beliefs seemed at times to function as justification or ‘evidence’ to the beliefs they held, through statements such as “I know, because...” (followed

by a story relating a personal experience). Other times they seemed to include vivid memories on which their beliefs were based.

While the present study was not designed to investigate guiding narratives, certain aspects of the interview procedure lent itself to narrative/oral history responses (see 4.2.3). Certain teachers provided more background information than others. In these cases rich contextual descriptions of the teachers' upbringings as well as other significant events in their lives served to highlight the seeming interrelatedness between teachers' life stories and beliefs. A short synthesis of the life stories of 3 teachers, 2 in Norway and one in Australia, are given to illustrate this (see appendix 8.2).

### **5.2.12.      Synthesis of interview results**

Overall, more teachers tended towards an incremental, than entity, view of intelligence. This was true for teachers in Norway and Australia alike. Furthermore, the between-group differences in relation to incremental versus entity beliefs were very small, as the same number of teachers tended to incremental and entity views in both countries.

There was a tendency that more teachers, in both countries, deemed learning ability to be modifiable than teachers who deemed intelligence to be modifiable. Furthermore, the modifiability of intelligence and learning ability alike seemed closely related to the teachers' conceptions of intelligence and learning.

As might be expected (see 3.5), more Australian than Norwegian teachers believed in giftedness, according to a classic conception of the term. The difference between Norwegian and Australian teachers' beliefs in giftedness was not as pronounced as the level of controversy that became evident while discussing giftedness, however: While most teachers in Australia were comfortable discussing the topic, most Norwegian teachers indicated it was a highly controversial topic, and several of them displayed a level of discomfort.

Teachers in Norway and Australia alike emphasized the importance of context in relation to student performance, indicating their beliefs in the impact of environment on learning and ability. However, there was a tendency that the Australian teachers would differentiate their feedback on the basis of ability level to a larger degree than their Norwegian peers. This

seemed related to how more Australian than Norwegian teachers believed in giftedness. Also, there was a tendency that teachers who believed in giftedness were weary of low performers giving up.

Several of the of participants gave responses indicating conflicting beliefs, pointing to the existence of implicit and explicit beliefs. This tendency was more prominent amongst Norwegian than Australian teachers. The teachers' conflicting beliefs were generally related to the central question of innate intelligence/giftedness versus beliefs in the potential of all children to improve.

No group differences in terms of influences on beliefs were apparant. It seemed like teachers in both countries were influenced by early schooling experiences and family life to a large degree. Furthermore, most teachers emphasized the influence by professional (work) experiences, while teacher education programs were generally not deemed to be influential. To the extent that teacher education programs were referred to, there was a tendency that individual mentors/professors would be emphasized rather than the programs themselves.

The interview responses indicated that teachers' beliefs were complex and interrelated, and included in a large 'ecology of beliefs'. This seemed closely related to their personal experiences, or 'life stories'. These results indicated that teachers' beliefs were affected by both early and late experiences, depending on the nature of their central beliefs as well as the context of their later experiences.

In short, as well as providing information regarding the teachers' beliefs about intelligence, an array of contextual information was gained through the interviews. Some of this was not anticipated, and while related to the central theme of teachers' beliefs about intelligence, not included in the research questions.

Given the seeming interrelatedness of teachers' beliefs, these unexpected results will nevertheless be considered and discussed in the following chapter, together with the results directly related to the initial research questions.



## 6. Discussion

The present study investigated teachers' beliefs about intelligence in Norway and Australia through interviews and an online survey. Three main research questions were raised, mainly;

- A. What is the nature of primary school teachers' beliefs about intelligence in Australia and Norway?
- B. Is there a relationship between incremental versus entity beliefs about intelligence, and teachers' cultural backgrounds?
- C. What are the main influences on teachers' beliefs?

The two first questions, A and B, were investigated through an online survey as well as interviews. The last question, C, was explored through interviews alone. Specific research questions were posted in relation to the online survey and the interviews.

This chapter will discuss implications from the results previously presented, drawing on the literature reviewed. First, main findings from the online survey will be discussed, followed by a discussion of the results from the interviews. Finally, a synthesis of the overall findings will be made, where tendencies noted in the surveys will be discussed in light of the findings from the interviews, and vice versa. The impact of the data collection method on the research results will be discussed, especially in light of the nature of implicit and explicit beliefs, given the various methods applied in the present project.

Given the quantitative nature of the online survey, it was relatively easy to identify the seemingly most prominent tendencies. Accordingly, the main findings from the online survey will be discussed in order of perceived magnitude. It should be stressed that any indications drawn from the online survey cannot be generalized beyond the participants in the present study, due to the earlier discussed limitations in terms of sample size (see 4.1.1 and 4.3.3).

## **6.1. *Main findings from survey results***

The exploration of the online survey data was guided by the following research questions;

- a) What are the beliefs about the modifiability of intelligence held by primary school teachers in Australia and Norway?
- b) Is there a relationship between holding incremental versus entity beliefs about intelligence, and teachers' cultural backgrounds?
- c) Is there a relationship between school context, in terms of students' performance level, and teachers' incremental versus entity beliefs about intelligence?

As discussed in the results chapter (see 5.1.3), the quantitative data analysis illuminated some unexpected, interesting tendencies, related to issues not included in the original research questions. These will be discussed first (in 6.1.1.), prior to looking at results more closely aligned with the original problem statements (see 6.1.2 and 6.1.3).

### **6.1.1. Variations according to item type**

The survey provided some interesting results in terms of overall variations in teachers' responses according to item type. While one of the initial research questions posted for the online survey was concerned with the variation in responses made by Australian and Norwegian teachers (see 6), this was in relation to their beliefs about the modifiability of intelligence, and not the nature of the items themselves.

After adjusting the scores to allow for meaningful comparison of the different instruments, it seemed evident that teachers' responses regarding intelligence varied according to the explicitness of the items. When the item was less explicitly related to intelligence, the teachers responded it was more modifiable than when the item was explicitly related to intelligence (see 5.1.3). Thus, most teachers responded that the 13 first characteristics on the CIS, which were implicitly related to intelligent behavior (see 4.1.2), were more modifiable than "intelligence" itself, the 14<sup>th</sup> item on the CIS. Similarly, the 13 characteristics from the CIS were deemed more modifiable than "intelligence" as it was presented through the 8 items in Dweck's instrument. This trend was evident for both groups, teachers in Norway and Australia.



This tendency is in accordance with Bråten and Olaussen (1998), who reported that their findings varied according to the manner in which the participants' theory of intelligence was assessed. Investigating the relationship between teacher students' theories about intelligence and their learning strategies, Bråten and Olaussen utilized the same instrument, the CIS, as applied in the present study. They found that the students participating deemed the single item on "intelligence" to be less modifiable than the other 13 characteristics related to intelligence presented. Furthermore, the authors reported that the participating students' beliefs about intelligence were only related to their learning strategies when their theories about intelligence were tested in an indirect way (in other words, with items in low face validity). Otherwise, when the participants' theories about intelligence were probed in a direct way, they tended to give responses that were more "politically correct" or "textbook", and less personal (Bråten & Olaussen, 1998).

There might be a difference in terms of how well-defined the characteristics seemed to the teachers in the present study. While "intelligence" might be interpreted differently from one individual to the next, and thus justifiably be conceived of as an ill-defined (and fairly intangible) construct, constructs such as "reading ability" or "problem solving ability" are more directly applicable to the everyday experiences of a teacher, and might thus in a sense seem more well-defined and tangible. The 13 first items measured beliefs about more tangible behaviors associated with intelligence, while the other items (item number 14 on the CIS and Dweck's 8 items; 1 + 8) measured beliefs about intelligence per se. It is not surprising that teachers might deem tangible characteristics of learners to be more modifiable than the multi-faceted "intelligence".

It seems the above findings regarding variations according to item type might be interpreted in several ways. The variations in mean scores might indicate that the items differed in stability or internal reliability, or that the items measured differed things (i.e. measurement validity). The responses to the items from the CIS in the present study were largely comparable to previous research (Bråten & Olaussen, 1998), in which it was concluded the instrument was of high reliability. The instrument from Dweck has also previously been found to give high scores on reliability (Dweck, 2002) (see 4.1.2 for issues concerning reliability). As such, it is tempting to conclude the items (13 versus 1 + 8) differed in measurement validity; in other words, that they might not have measured the same things.

Drawing on the study by Bråten and Olaussen, it seems that the 13 first items from the CIS might have elicited responses more in line with the teachers' personal views, while the items directly related to "intelligence" (1 + 8) elicited responses more related to external influences such as pedagogically correct views (politically correct/textbook replies). Accordingly, it is possible that the first 13 items from the CIS measured *implicit* beliefs about intelligence while the 14<sup>th</sup> item (intelligence), along with the instrument from Dweck, measured the teachers' *explicit* beliefs.

According to research previously discussed (chapter 2.1.3), individuals might comfortably hold conflicting beliefs concurrently. Feelings of dissonance are avoided due to the peculiar nature and organization of beliefs; beliefs are held in clusters, between which there might be few functional connections (little "cross-fertilization", so to speak). Furthermore, subconscious or implicit beliefs might be at odds with what individuals are conscious of believing. This supports the notion that the participating teachers might have held both explicit and implicit beliefs regarding intelligence concurrently, and that these beliefs may have differed, for instance in relation to modifiability. The difference in forms of expression utilized to probe these beliefs might have further enabled the teachers to interpret them as separate, detached constructs, thus reducing or altogether avoiding dissonance.

### **6.1.2. Between-group differences**

Generally, the survey responses from teachers in Norway and Australia tended towards an incremental view of intelligence (see 6.1, research question a).

Furthermore, the general responses from teachers in both countries to the online survey were quite comparable (see 6.1, research question b). The survey did yield some between-group differences in terms of teachers' beliefs, however (see 5.1.2 and 5.1.3). These differences were not considered in terms of statistical significance, given the small sample size, but some interesting tendencies might be noted. While the difference in mean scores for the first 13 (less explicit) items was very small between the groups, the differences in mean scores were more pronounced for the 14th item, "intelligence", as well as for Dweck's 8 items (see 5.1.3). The between-group differences were thus more pronounced on the items explicitly related to intelligence than on the other items.

If the between-group variations in mean scores relative to the degree of explicitness of the items are interpreted along the lines of Bråten and Olaussens' considerations discussed above (see 6.1.1), the teachers' personal, implicit, beliefs about intelligence, as indirectly probed through the 13 first items of the CIS, were actually very similar amongst the two groups. The difference in mean scores between the countries on the more explicit items would thus indicate that the teachers were differentially influenced by external, "politically correct", replies in the two countries.

While teachers in both countries responded intelligence was less modifiable on the explicit than the implicit items, the teachers working in Norway gave more incremental responses on these items than their peers working in Australia. This might indicate that holding incremental views regarding intelligence is deemed socially correct to a larger degree amongst the Norwegian than the Australian teachers. The manifestation of egalitarian values within different cultural contexts was discussed in chapter 3. According to this discussion (see 3.5), it is likely that equality of opportunity is interpreted in a more broad and radical manner in Norwegian relative to Australian society. Furthermore, Norwegian educational policies seem relatively more concerned with reducing difference than Australian policies. Finally, while gifted education is a common phrase in Australian pedagogical research and practice, reflecting a focus on the nurturing of talents in Australia, it is practically inexistent in the Norwegian context (Eurydice, 2006; Mathiesen, Holte, & Mehli, 2006). It is possible that the differential cultural contexts in Norway and Australia influenced the teachers to the extent that they felt comfortable expressing entity views regarding intelligence to different extents.

It is also possible participants in the present study deemed the 13 characteristics to be related to the explicit concept "intelligence" (as expressed in the 14th item as well as Dweck's 8 items) to a relatively small degree. As suggested, intelligence is a relatively intangible concept, and its meanings might often be understood differentially from one person to another. Recollecting that the CIS instrument was originally constructed on the basis of student teachers' (laypersons') ratings regarding characteristics related to intelligence (Bråten & Olaussen, 1998, see 4.1.2), no absolute degree of association can be determined between the 13 individual characteristics and the concept intelligence itself. Matters of opinion might conceivably differ from one individual to another, so also between teacher students and experienced teachers. If, in the present project, the 13 items were generally deemed to be unrelated to the other items (1 + 8), the mean scores from these items should not be included

in considerations regarding the teachers' beliefs about intelligence. The between-group differences on the other items ("intelligence" and Dweck's 8 items) might in such a view represent a real difference in the Australian and Norwegian teachers' beliefs regarding the modifiability of intelligence. This would indicate that the participating Australian teachers deemed intelligence to be less modifiable than the Norwegian teachers, again indicating the influence by cultural context on the teachers' beliefs.

Ho (2004) discussed the influence of cultural context on teachers' beliefs. She reported that teachers in Australia and China attributed students' problem behaviors to different factors, arguing that the differential cultural settings in Australia and China impacted on the teachers' meaning systems. Teachers in Australia attributed the students' behaviors to ability to a larger degree than their peers in China, who placed greater importance on family influences.

It is possible that the specific manifestation of egalitarianism in Norwegian educational culture (see 3.4.1 and 3.5), in terms of the focus on the potential for development in all students, and a reluctance to categorize according to ability level (reflecting an emphasis on changeable, environmental factors and a de-emphasis on stable, internal factors), has influenced teachers in Norway to hold more incremental beliefs. Simultaneously, the Australian educational culture, with an emphasis on equality of opportunity to compete as well as the more prominent place of gifted education (see 3.4.2 and 3.5), might have influenced teachers in Australia to hold beliefs tending more towards an entity view, relative to the teachers in Norway. As such, cultural contexts might have influenced teachers' beliefs about intelligence to the extent that Norwegian teachers deemed intelligence to be more modifiable than their Australian peers. The *relative* difference should be emphasized here, as the groups in Norway and Australia both tended towards incremental rather than entity views, in general.

### **6.1.3. School performance and beliefs regarding intelligence**

In terms of research question c; is there a relationship between school context, in terms of students' performance level, and teachers' incremental versus entity beliefs about intelligence, some interesting tendencies were found.

Teachers who rated their schools as average or above average in student performance, got higher combined mean scores on the 13 first items from the CIS than teachers who rated their schools as below average (see 5.1.3). There was little difference in mean scores on the CIS between the teachers who rated their schools as average and above average, while those who rated their school as below average had a lower mean score than both. No comparable difference between these groups was evident on the responses to the other, more explicit, items ("intelligence" and the instrument by Dweck).

These findings might be indicative of the influence by work experiences on teachers' beliefs about intelligence. The literature on beliefs (see 2.3.4) indicate that teachers both influence and are influenced by their immediate work surroundings, such as student or school characteristics. As such, it is possible that different experiences with students, in terms of teaching students of high or low ability, might influence the degree to which teachers hold incremental or entity beliefs. The results also point to another tendency previously noted and discussed; the discrepancy of teachers' responses to items more or less explicit in character.

#### **6.1.4. Summary**

In sum, analysis of the online survey data indicated the teachers' overall responses varied according to item type (implicit- explicit), and that the variations between individual teachers' responses according to item type were more pronounced than the variations between groups. The between-group variations, as according to teachers working in Norway and teachers working in Australia, were most pronounced in relation to the items of high explicitness. Furthermore, teachers who rated their schools as average or above average in terms of student performance, responded intelligence (as probed through implicit items) was more modifiable than teachers who rated their schools as below average.

While the results might be interpreted in a number of ways, it is likely that the teachers' responses were influenced by their cultural background to some degree, as between-group variations might be interpreted either in light of the impact of cultural background on teachers' beliefs regarding the modifiability of intelligence, or, rather, as a reflection of what beliefs are deemed socially desirable in the two countries, and to what degree the teachers, accordingly, felt comfortable expressing 'politically incorrect' beliefs. Nevertheless, as according to McInerney (2005, see 3.3), it is possible the within-group differences were as

pronounced as the between-group differences, in terms of Australian and Norwegian teachers' beliefs about the modifiability of intelligence. The discussion of the interview results might serve to illustrate these points further.

## **6.2. *Main findings from interview results***

The interview guides were designed around the following research questions:

- a) What is the nature of primary school teachers' beliefs about intelligence in Australia and Norway?
- b) Is there a relationship between incremental versus entity beliefs about intelligence, and teachers' cultural backgrounds?
- c) Are the teachers' explicit responses regarding beliefs about intelligence consistent with their other statements throughout the interviews?
- d) What are the main influences on teachers' beliefs?

As indicated in the result section (see 5.2.12), the interviews generated some data not explicitly related to the initial research questions. Some of these unanticipated tendencies were nevertheless deemed interesting, and are considered in the following discussion. While a tendency from the interview results was the interrelated nature of teachers' beliefs, the interview responses most explicitly related to the initial survey questions will be considered in sections 6.2.1, 6.2.3, 6.2.6 and 6.2.7.

The interviews yielded results more complex and less quantifiable in nature than the online survey results. While the survey results were discussed according to perceived magnitude, the interview results will thus generally be discussed according to theme or seeming interrelatedness. Beliefs associated with intelligence, for instance learning ability, giftedness, and students' potential for improvement will be discussed given their close association to beliefs regarding intelligence. The most prominent tendencies will be discussed in the synthesis (see 6.3), together with the most prominent survey findings.

Some specific examples will be made, in regards to the teachers' responses, in order to better illustrate the points discussed. The examples are largely drawn from only a select few teachers, which serves to illustrate one of the main points in the discussion, in terms of

teachers' 'life stories' (see 6.2.8 and 6.3.6). While these examples might be slightly repetitive, in that the information is already presented in the results chapter, it was deemed that in order to promote a fluid reading experience, without the need to search excessively for information elsewhere in the paper, this would be forgivable in relation to central points of the discussion.

### **6.2.1. Incremental and entity views about intelligence**

In both countries, most teachers tended towards incremental views about intelligence while a small number of teachers in each country tended towards entity views or were undecided. As such, small differences were found between the groups in terms of beliefs regarding intelligence (see 5.2.3 and 5.2.12). This demonstrated that the teachers in Norway and Australia generally regarded intelligence as fairly modifiable (research question a; see 6.2), and that both groups held quite similar beliefs regarding the modifiability of intelligence (research question b; see 6.2).

These findings might be interpreted in (at least) two distinct ways. One is the possibility that teachers' beliefs are influenced by their cultural backgrounds to a small degree. This would indicate that beliefs are formed largely on the basis of personal and un-derived, early experiences, and are fairly resistant to influence by general, shared culture. Another possibility is that the cultural contexts of Norway and Australia do not differ sufficiently to lead to different beliefs in this respect.

According to the research concerning belief formation (see 2.3.4), it is unlikely that teachers' beliefs should not be influenced by the cultural context within which they live and work. Furthermore, while Norway and Australia differ in many respects, they also share several similarities despite their physical distance. Importantly, both countries are committed to egalitarian values of a sort, and share many similarities through their educational histories (see 3.5). Noting the argument by McInerney (2005) that over the last 25 years, more within-group than between-group differences have been found in educational psychology research, as well as his caution to over-generalize on the basis of cultural differences (see 3.3), it seems likely that teachers in Norway and Australia might hold relatively similar beliefs regarding the modifiability of intelligence.

### **6.2.2. Intelligence versus learning ability**

There was a difference in teachers' beliefs about the modifiability of intelligence, and beliefs about the modifiability of learning ability (see 5.2.4). While both were deemed relatively modifiable by teachers in both countries, more teachers, overall, reckoned the *ability to learn* could be changed than teachers who reckoned *intelligence* could be changed. This indicated that intelligence and learning ability were understood as fairly distinct constructs.

Most teachers stressed the influence by both genetic and environmental factors on the ability to learn; outside stimulation was seen as able to potentially alleviate for innate shortcomings in terms of low intelligence, and as necessary in order to reach innate potential. As demonstrated through questions regarding how to deal with low performance, most teachers emphasized the influence by learning methods and strategies on the ability to learn. Learning ability as such might seem more closely related to the learning activities the teachers had the students engage in and practice on a daily basis. It is possible that learning ability was perceived to be tangible and controllable to a larger degree than intelligence, and thus perceived to be easier to change.

### **6.2.3. Nature of beliefs**

Another tendency from the interviews, relating to the nature of teachers' beliefs (see 6.2, research question a), was the complex and interrelated nature of teachers' beliefs. This was evident throughout many of the interviews, and demonstrated through teachers' responses to several of the items. Teachers' beliefs regarding the modifiability of intelligence and learning ability seemed closely related to their conceptions of intelligence, as well as associated beliefs regarding the nature of learning. For instance; 2 of the 3 teachers who emphasized thinking speed in their conceptions of intelligence, believed intelligence could be changed to a small degree only, and doubted whether the ability to learn could really be changed (see 5.2.3). And while these two teachers shared a basic conception regarding intelligence (entity view), they nevertheless differed in their views regarding learning outcome, according to their detailed beliefs regarding learning. This further illustrated the complexity of teachers' beliefs, as exemplified below:

Rob saw intelligence, learning ability and learning outcome all to be closely related, and believed learning was a matter of acquiring information. A student would neither become



more intelligent nor better at learning through learning more. Given his belief that intelligence determined the speed and ease with which one could learn, a less intelligent person would always have to struggle more. Ulf, on the other hand, seemed to think that most individuals could improve their learning ability through learning better methods, as this was a matter of realizing untapped potential rather than actually increasing their intelligence or learning ability. Someone less intelligent could thus generally improve his/her learning outcome through applying more effective methods. Intelligence, learning ability and learning outcome thus seemed less closely related according to Ulf's view.

The interrelated nature of teachers' beliefs was demonstrated at the other "extreme" by Dave, who felt that both intelligence and learning ability was due to environmental factors alone. Dave emphasized the importance of motivational factors throughout, so also in his conception of intelligence; which he felt was related to not just understanding, but *trying* to understand. Dave related how his professional experiences while working in disadvantaged communities had cemented his view that motivational factors, as well as resources, were absolute key to learning.

The interrelated nature of these teachers' beliefs point to the influence by personal experiences on belief formation (see 2.1.2). This will be discussed further in relation to the influences on teachers' beliefs (see 6.2.6). These findings also demonstrate how knowledge of one belief, for instance an entity or incremental view of intelligence, might not accurately predict a teacher's associated beliefs, without knowledge of other influencing factors in the belief system.

#### **6.2.4. Beliefs regarding giftedness**

While the teachers did not seem to vary much in regards to holding incremental vs entity beliefs in Australia and Norway, other themes in the interviews did render differences in responses seemingly related to cultural background. When applying the most common understanding of giftedness; that some children are born with higher ability than others, which cannot be achieved through practice alone (see for instance Gross, 2010), there seemed to be a marked cultural difference between the teachers' beliefs (see 5.2.5).

The teachers in Australia responded some people were born more intelligent and/or with higher abilities than others to a larger degree than did teachers in Norway. While quite a few teachers, in both countries, were open to the idea that some students seemed to learn faster and more easily than others, the Norwegian teachers were reluctant to ascribe these abilities to genes alone. This is not surprising, given the relatively stronger focus on gifted education both within schools and research programs in Australia than in Norway. While gifted education is discussed at policy level in Australia, a term to characterize children of high ability is practically absent from the Norwegian discourse regarding pedagogy and education (see 3.4.1).

While this demonstrates there were some differences in teachers' responses to giftedness according to cultural background, the differences were more marked according to the *manner in which* the teachers responded to the 'gifted items' (see 5.2.6). While certain teachers in Norway, like their peers in Australia, believed in giftedness in some form, there seemed to be a marked culturally based difference in the teachers' affective reactions to the subject. This was demonstrated through how most of the teachers working in Norway, but none of the teachers in Australia, indicated it was a rather controversial topic. Furthermore, some of the Norwegian teachers seemed eager to portray a positive attitude during the interview. Politically correct responses seemed to be activated to a larger degree amongst the Norwegian teachers than amongst their Australian counterparts, and several of the Norwegian teachers seemed a little uncomfortable discussing the topic of giftedness.

These findings seem to reflect the extent to which gifted education is considered a valid educational policy in the two countries, as well as the degree to which it is incorporated in schools and general discourse regarding education (see 3.5).

Several of the Norwegian teachers pointed to how the concept of giftedness went against central Norwegian values, such as similarity and equality. This mirrors the Norwegian focus on reducing difference through strengthening the opportunities for the perceived weaker individuals in society, reflected in intervention policies such as obtaining equality of the sexes through female quota, and extending remedial help to weaker students in school (see 3.4.1). In a cultural setting where the desired outcome is even and equal, helping the stronger students to become even stronger might be deemed undesirable and inherently unfair.

Simultaneously, in Australia, gifted education is a research genre in its' own right, prospective teachers undergo training in regards to the identification and teaching of gifted students, and there are primary schools providing for the education of gifted and talented students (see 3.4.2). As such, giftedness is a legitimate topic in Australia. Given the varying extent and application of the term in Australia and Norway, teamed with differential cultural acceptance of giftedness in educational policy as well as general society, differential reactions to the topic giftedness might thus be expected.

### **6.2.5. Beliefs regarding student performance and feedback**

Most teachers in both countries emphasized the importance of context in regards to low performance (see 5.2.7), and thus indicated their belief in the influence by environmental stimuli on performance results. The teachers placed emphasis on a number of different influences, for instance home situation, well-being and effort, and responses did not seem to vary according to the teachers' cultural background. Similarly, in relation to improving general performance, teachers in both countries placed importance on feedback related to specific skills, and motivating students through pointing out tasks they *could* do.

There was a difference in terms of how the teachers emphasized the impact of student-teacher relationships on motivation and performance. Half the Norwegian teachers but only one Australian teacher mentioned that building student relations was important, in terms of both knowing how to motivate the student and communicating expectations. Given this tendency was noted in relation to voluntary statements, and not as responses to direct questions, it is not known to which degree Australian teachers might have emphasized student-teacher relationships to the same degree.

While there were generally small differences between Australian and Norwegian teachers' emphasis on contextual factors in relation to low performance, there was an indication that the teachers in Australia would differentiate their student feedback and/or responses on the basis of students' ability level to a higher degree than their Norwegian counterparts (see 5.2.7). Teachers' responses to this question seemed related to their responses regarding giftedness, and the variation might thus be seen in light of the Australian and Norwegian teachers' different responses to the subject giftedness. Half the Norwegian teachers and one Australian teacher explicitly stated they would not differentiate, which might also be seen in relation to a

theme previously discussed; politically correct beliefs in relation to Norwegian egalitarianism. As discussed above, it is uncertain to which degree the Australian teachers might have emphasized a similar point of view as the Norwegian teachers if asked directly. Nevertheless, the fact the Norwegian teachers chose to utter these statements is interesting in its own right.

The willingness to differentiate amongst the Australian teachers was related to specific beliefs about giftedness; some Australian teachers held that gifted students benefited from creative freedom and challenging tasks to a higher degree than their non-gifted peers (regardless of their relative ability level). This might be related to the likelihood that at least some of the teachers in Australia had undertaken preparatory courses emphasizing the identification as well as differential treatment of gifted students, based on research concerning gifted education (see 3.4.2).

There was a related tendency that teachers who believed in giftedness were concerned that students of low ability would loose motivation due to experiencing too many failures, and were thus disinclined to push such students (see 5.2.7). Encouraging students of low ability to compare their progress to themselves, and no-one else, teaching specific skills and strategies, and generally encouraging them to "feel good about themselves" were some strategies mentioned to cater for students of perceived low ability.

Some of the sentiments regarding low ability students were shared by Norwegian teachers, who expressed, in line with their Australian counterparts, a weariness to push these students too hard. However, more Australian than Norwegian teachers expressed beliefs in giftedness (see 5.2.5), and by extension, expressed inclinations to differentiate between students on the basis of high or low ability (see 5.2.7). Furthermore, it seemed like different contexts caused (outwardly) similar beliefs to manifest themselves in different ways. This is exemplified, again, through the different responses by Ulf and Rob. While both the Norwegian (Ulf) and the Australian (Rob) teacher believed intelligence could not be changed, both believed in giftedness, and both emphasized how students of low ability might be inclined to give up, they expressed widely different beliefs in terms of the usefulness of remedial education as well as their inclinations to differentiate feedback (see 5.2.7).

This again points to the complex nature of beliefs, as well as the influence of other beliefs in the belief system on the manifestation of said beliefs (see 2.1.3). Ulf, who did not believe that

intelligence, learning ability and learning outcome were inextricably interlinked, had no problems expressing entity beliefs althwhile emphasizing the potential for improvement, given the right resources. For Rob, on the other hand, it seemed like intelligence, learning ability and learning outcome were all directly related, and furthermore were deeply ingrained in his belief system. In his reality, an entity view regarding intelligence meant he did not really believe children could improve beyond a given 'roof' of potential.

Finally, the teachers' different responses emphasize the importance of context (see 2.4 and 3.5). It is possible that a cultural setting in which differential treatment of students on the basis of perceived ability level is both common, taught and 'allowed', justified Rob's belief that teachers should not expect too much from certain students. These examples demonstrate how one cannot accurately predict outcome or behavior from one belief only; rather, an understanding of the belief system at large, as well as the context within which it is expressed, seems necessary.

#### **6.2.6. Influences on teachers' beliefs**

In terms of what had worked as the biggest influence on the teachers' beliefs (see 6.2, research question d), there was no apparent difference between teachers working in Australia and in Norway (see 5.2.8). Looking at both explicit responses as well as beliefs implicitly derived at, family life had worked as the biggest influence on most teachers in both countries. Many teachers named particularly influential family members such as their mother, or an aunt who was a teacher. Some respondents seemed to have been influenced by their family more or less implicitly; repeatedly relating seemingly identical beliefs and traits. This is in line with research regarding beliefs pointing to the importance on early experiences on belief formation (see 2.1.2 and 2.3.4), as well as research pointing to the existence of implicit, or subconscious beliefs (see 2.1.1).

The influence by early schooling experiences was emphasized by several teachers (see 5.2.8). Also, some teachers seemed to be influenced by such experiences to a definite degree, while not explicitly stating so (in other words it was derived at implicitly by the researcher). Three teachers related vivid memories of labeling and other negative classroom experiences, and how these critical events had led them to steer clear of similar practices in their own teaching (see 5.2.8). The responses by these teachers seem related to the alternative realities described

by Nespor (1987) (see 2.1.1). Nespor held that beliefs are not necessarily related to lived experiences or existing realities, but might be attached to an imagined reality which has not even been experienced. The beliefs by these teachers were thus not so much related to an image of teaching the way it should be, but rather how teaching should *not* be.

Of the early influences mentioned by the participating teachers, memories regarding childhood experiences seemed to be the most clear and concrete, bound up to specific events or circumstances. It seemed like these memories had become guiding images, rich in affective colour and detail, as discussed by Nespor (see 2.1.1 and 2.1.2). Family influences, in comparison, seemed to be less bound to specific events and of a more general affective character. In many cases, parents who were seen to have been influential on the formation of the teachers' beliefs were still deemed influential to this day, and the teachers tended to emphasize the positive characteristics, presumably on-going, of these family members, rather than specific events. It seems likely that some of these family influences on beliefs were implicit in character, and that beliefs formed on the grounds of these influences developed slowly and implicitly. This in comparison to beliefs formed on the basis of explicit events, such as vividly remembered childhood experiences.

Many teachers emphasized the influence by professional experiences, amongst them several of the same teachers who also emphasized the influence by family. This points to several things; the influence by later, professional experiences on existing beliefs, and that there is no 'either – or' in this matter, as a number of factors are likely to influence individuals. To what extent existing, early beliefs might have been challenged and/or changed by new experiences is uncertain. According to the research discussed (see 2.1.4 and 2.3.4), it is likely that the new experiences have rather worked to either crystallize or reconfirm existing beliefs, as in the words by Christina (who felt her work experiences had confirmed her existing beliefs).

Whereas the influence by work experiences was emphasized by several teachers, hardly any teachers emphasized the importance of their teacher training programs in terms of influence on their beliefs (see 5.2.9). Several teachers raised criticism pointing to how they had felt ill equipped by such programs to enter their profession. Particularly, the lack of correspondence between theoretical pedagogical teachings and class-room practice was criticized. Individual teachers/professors from this period were mentioned though, in both negative and positive terms. All teachers who mentioned specific mentors or teachers indicated that the experiences

under this teacher had influenced their own practice to some degree. Like the specific childhood experiences mentioned by many teachers, it seems likely that the memories related to these events and individuals might have taken the shape of guiding images (see 2.1.1 and 2.1.2), activated at specific times (for instance when starting a new subject, like one of the teachers responded). While there was no evidence in the present context these guiding images were specifically related to beliefs about intelligence, they seemed to have influenced the participating teachers' beliefs regarding the teaching role in general, as well as matters of teaching strategies and methods.

### **6.2.7. Inconsistent beliefs**

In relation to research question c; regarding the consistency between teachers' belief responses throughout the interviews; about one third of the participants' responses pointed to belief dissonance (see 5.2.10). These teachers expressed inconsistent beliefs either at different times during the interview or, often, in relation to different questions/subjects. Most of the time teachers related these inconsistent or conflicting beliefs quite calmly and happily, seemingly not noticing the contradiction. It seems likely that some of the beliefs, as evident through the teachers' examples or descriptions of practices, were implicit in character. Furthermore, it seems like conflicting beliefs might have been attached to distinct situations or contexts, meaning they would only be activated at certain times, and usually never concurrently.

In the events where belief dissonance was obvious, one teacher responded by simply reiterating his statement, presumably related to the most central belief, and thus proceeding, seemingly ignoring the explicit inconsistency (see 5.2.10; James). Two teachers seemingly felt like their identity was threatened, and explained the feeling of discomfort with external causes such as interviewer challenge (see 5.2.10; Hedda and Stein). Most of the inconsistencies were related to issues of innate intelligence and/or giftedness.

More Norwegian teachers than Australian seemed to hold inconsistent beliefs (see 5.2.10). It seems likely that these teachers held central, implicit, beliefs, possibly derived from early experiences. Juxtaposed against these beliefs were politically correct, or textbook, beliefs, 'learnt' through teacher training courses or general cultural influences (see 2.1.2), which they as teachers were very aware of and held explicitly. Early, central beliefs were not always

evident (often implicit) (see 2.1.1), and might only manifest themselves in certain instances or in relation to specific triggers. This points to the cultural context of the Norwegian teachers. Intelligence and giftedness is a possibly controversial pedagogical topic in Norway (see 3.5), and it is not unlikely that the teachers felt inclined to respond with pedagogically ‘correct’ responses in this setting. It is nevertheless an interesting tendency if teachers in Norway were more inclined to give textbook responses than their Australian peers.

#### **6.2.8. Life stories**

As discussed, the participating teachers’ beliefs were often attached to specific events or experiences, particular to the lives of each teacher (see 5.2.11). Moreover, these beliefs seemed part of a complex ecology of interrelated beliefs. In some cases rich contextual descriptions of background experiences as well as significant events in the teachers’ lives served to highlight the interrelatedness between teachers’ life stories and beliefs (see appendix 8.2). This might be seen in relation to general life history research (Bryman, 2008), Dweck’s meaning systems (2008), or the guiding narratives discussed by Bullough and Baughman (1997). While the identification of guiding narratives, as related to the teachers’ life stories, was not a focus of the present study, some teachers voluntarily gave responses which indicated certain guiding images of the role of the teacher, as well as rich contextual descriptions of their personal histories, which seemed well aligned with their expressed beliefs.

An understanding of beliefs in terms of complex ecological systems might serve to explain the seeming inconsistencies expressed by the teachers. Looking at the influence by their life stories on forming these beliefs might help predict related teaching behavior. Some of the guiding narratives identified were ‘mother’ (Gwen, “loving them along”), ‘social worker’ (Tove, “strengthening their strengths”, social integration), and ‘carer’ (Victoria; looking after every aspect of her students). This seems to be in line with the research by Bullough and Baughman (1997) (see 2.3.3) who discussed how the guiding narrative of ‘mother’ (developed on the basis of personal life experiences) influenced the behaviors of a public primary school teacher in the US.

While some teachers’ seemed to be influenced by their early experiences to a large degree, others seemed to be equally influenced by later experiences. It is likely that the degree to which early and later experiences were influential on teachers’ beliefs was dependent on



several, contextual factors, such as individual characteristics, the nature of the experience and/or belief, and the relative strength of other, potentially conflicting, beliefs and experiences.

### **6.3. *Synthesis***

The previous sections discussed the main results from the online survey and the interviews. Presently, main tendencies from these findings will be discussed together, and in light of one another. As previously discussed (see summary of results; 5.1.3 and 5.2.12), the online survey and the interviews alike rendered some unexpected, but interesting, tendencies. Noting the partially exploratory nature of this project (see 4.2.4) it was felt that allowing these unanticipated tendencies to redirect the main research focus was valuable, and a part of fully utilizing the potentials related to interviewing.

The overall tendencies when looking at the survey as well as the interview data will be discussed irrespective of the degree to which they relate to the initial research questions. The findings explicitly related to the main research questions posted are treated in sections 6.3.1, 6.3.3, 6.3.5 and 6.3.6.

#### **6.3.1. Incremental versus entity beliefs in Norway and Australia**

In relation to research question A (see 6), teachers in both countries generally tended towards incremental views of intelligence. Furthermore, there were small differences between Norwegian and Australian teachers' beliefs about the modifiability of intelligence (see 6, research question B). This was evident through the small group differences on the implicit items on the survey (as discussed in 6.1.2), and the small group differences on teachers' responses regarding the modifiability of intelligence during the interviews (as discussed in 6.2.1). The fact that the interview responses indicated teachers in both countries tended towards incremental views, indicate that the most probable or correct interpretation of the variations in group differences between more and less explicit items in the survey, implies that the items did not measure the same things. As such, responses to the survey items implicitly related to intelligence were likely related to the teachers' personal beliefs regarding intelligence.

These findings indicate that Australian and Norwegian cultural differences are not pronounced to the extent that teachers in the countries form different beliefs about the modifiability of intelligence. It is likely that findings from research developments (concerning the nature-nurture debate) are disseminated in Australian and Norwegian societies to comparable degrees, given the global context of the information age (see 3.3). As such, the ‘factual’ basis of teachers’ beliefs might not differ much between countries where such information is equally available.

One interesting point to note is why Norwegian and Australian teachers’ interview responses did not differ more in relation to explicit questions regarding the modifiability of intelligence (in line with the responses to explicit items in the survey). While the direct comparability between results from different methods and concerning different participant groups is limited, and the response rate to the survey further limits the extent to which conclusions can be made, it might seem like explicit items in the interview and in the survey elicited different types of reactions from the participants. It is possible, of course, that these variations stem from an interviewer effect (see 4.2.3 and 4.3.1)

### **6.3.2. Politically correct beliefs**

While teachers in Norway and Australia did not seem to differ much in regards to holding incremental or entity beliefs (see 6, research question B), between-group differences were evident in relation to the *expression* and *manifestation* of beliefs regarding intelligence in the two countries. In terms of expression, the differences encountered were in relation to the degree and manner in which certain items seemed to trigger “politically correct” or “textbook” responses from the teachers. This was evident in the online survey, through the larger between-group differences on explicit, as opposed to implicit, items (see 5.1.2); and during the interviews, where there was a difference between the groups in terms of how comfortable teachers were discussing issues regarding innate ability and “giftedness” (see 5.2.6). Some Norwegian teachers also seemed eager to portray “desirable” beliefs, indicating a strong awareness of politically correct beliefs about intelligence in Norway. Many Norwegian teachers voluntarily contributed that giftedness and/or intelligence were ‘taboo’ or controversial subjects, going against central, shared Norwegian values such as similarity and equality (see 3.4.1).

In terms of manifestation of beliefs, some interview responses indicated that incremental/entity beliefs might play out differentially in the two settings. While no more clear entity ‘theorists’ were identified in Australia than in Norway, there were indications the Australian cultural setting might allow for a more uninhibited display of entity beliefs than the Norwegian one (see 5.2.6), and also for differential treatment of children on the basis of ability (see 5.2.7). The extent to which teachers’ behaviors are consistent with the responses expressed in the interviews can of course not be asserted. Nevertheless, it is interesting to note how an entity belief might manifest itself in a setting where differential treatment of students according to ability is justified and/or promoted (see 3.4.2).

Egalitarianism might be manifest differentially in different cultural contexts, and it has been argued that Norway and Australia differ in the manners in which equality is interpreted (see 3.5). While equal opportunities in Norway is interpreted in a broad and radical way, requiring equal outcomes in order to be fulfilled, equal opportunities in Australia is interpreted in a more narrow way, meaning equal access. While these values are not necessarily reflected in society, they might be seen in terms of ideals guiding policy. In terms of education, this is reflected in how intervention is regularly applied in Norwegian schools, in order to reduce difference in outcome. To focus on giftedness, in order to promote differential treatment of children of high ability, might be deemed to go against the basic premise of reducing difference. Simultaneously, in the Australian context emphasizing equal access, interventions are some times deemed unfair or ‘favoritism’, as they reduce individuals’ freedom to compete for difference (see 3.4.2). While public schools in Australia are comparable to public schools in Norway in many aspects, academically selective public schools, as well as private schools, co-exist alongside the general public school system (see 3.2.3). In this context, gifted education in Australia is rested within an educational system accustomed to difference.

### **6.3.3. Implicit and explicit beliefs**

Another aspect of the nature of teachers’ beliefs, as related to research question A (see 6), and discussed in sections 6.1.1 and 6.2.7, it seemed like several of the teachers participating held conflicting implicit and explicit beliefs. As a group, teachers’ responses varied according to the explicitness of the items on the online survey, indicating that many of the teachers held concurrent, slightly conflicting, beliefs about intelligence. Simultaneously, both Norwegian and Australian teachers’ responses during the interviews at times indicated contradicting

beliefs. These inconsistencies seemed to be more prominent amongst the Norwegian than the Australian teachers, and were generally related to issues regarding innate intelligence and/or giftedness.

Most teachers did not seem to notice or care when seeming inconsistencies became apparent during the interviews. This is in accordance with research regarding the nature and organization of beliefs, which indicates that individuals might comfortably hold conflicting beliefs without experiencing dissonance. This is achieved through the compartmentalization of beliefs, where incompatible beliefs are rarely juxtaposed (see 2.1.3. and 2.1.4).

It is worth noting how implicit items seemed to render survey responses more related to personal beliefs and less related to politically correct, or textbook, views. This, again, points to the influence by method, in terms of direct or indirect probing, on belief responses. In relation to the instruments presently applied, it is possible the instrument by Dweck (see 4.1.2), which was deemed relatively high in explicitness, might yield results more closely related to personal beliefs when it is given to children than to adults.

#### **6.3.4. Variations according to item type**

Teachers' responses regarding modifiability of intelligence seemed to vary according to how tangible the items might be deemed by the teachers. In relation to the survey, this was demonstrated through how items which were more closely associated with teachers' day to day tasks, and thus might be deemed more tangible, were deemed more modifiable than more abstract, and seemingly intangible, items (see 5.1.2). In the interviews, learning ability was generally deemed more modifiable than intelligence. It seemed like the teachers felt learning ability was closely associated with learning method and learning strategies, which are again relatively closely related to teachers' everyday tasks. Intelligence, on the other hand, tended to be associated with the ability to think or comprehend, which might be harder to translate into a classroom lesson (see 5.2.4).

#### **6.3.5. Influences on teachers' beliefs**

No group differences were found in terms of influences on teachers' beliefs in Norway and Australia (see 6, research question C). Results from the interviews indicated that teachers

were affected by both early and late experiences to a degree (see 5.2.12). While the low survey response rate didn't facilitate investigating the impact of background factors on teachers' beliefs to a full extent, there was an indication that student/school characteristics impacted on teachers incremental versus entity beliefs (see 5.1.3).

Interview responses indicated that early experiences, in the form of influence by significant family members, might over time have worked to form implicit beliefs with affective qualities (see 5.2.8). Furthermore, it seemed like vivid memories of early schooling experiences as well as other critical events (i.e. in relation to teaching mentors) in some cases functioned as guiding images in relation to teaching behaviors. These findings are in accordance with general research regarding beliefs, emphasizing the role of early experiences on belief formation, as well as the affective and visual aspects of some beliefs (see 2.1.2 and 2.1.3).

Teachers also expressed in the interviews that their beliefs were influenced by work experiences as adults (see 5.2.8). None of these teachers expressed having reflected around their beliefs before, indicating they had not experienced belief dissonance to any conscious degree. According to literature regarding belief change (see 2.1.4 and 2.3.4), it is thus likely that work experiences had served to reinforce rather than change existing beliefs, and that any new beliefs formed at this stage did not present a threat to the teachers' existing belief structure.

The potential impact by immediate surroundings, in shape of student or school characteristics, was indicated by the survey results. Teachers who deemed the school they worked at to be either average or above average in terms of student achievement, deemed intelligence to be more modifiable than teachers who rated their school as below average in terms of student achievement (see 5.1.2). This is in line with research emphasizing the influence by immediate surroundings on teachers' beliefs (see 2.3.4).

It seems plausible that most teachers' beliefs are influenced by early experiences to a large degree. Furthermore, that the degree to which teachers' beliefs are influenced by later experiences is dependent on individual characteristics as well as contextual factors. While this project demonstrated how some teachers' beliefs seemed governed by very stable, early influences, other teachers seemed to base their teaching beliefs on later experiences. Considering the totality of an individuals' belief structure thus seems vital to enable better

understanding of the degree to which teachers are affected by different experiences, to understand which beliefs are activated under which circumstances, and to predict related beliefs or teaching behavior to any degree of accuracy.

### **6.3.6. Complex and interrelated beliefs**

Results indicated that the teachers' beliefs were complex and interrelated in nature, another aspect related to research question A (see 6). This was demonstrated throughout the interviews, for instance through teachers' related responses to intelligence and learning ability (see 5.2.3 and 5.2.4). The complexity of teachers' beliefs was further indicated in the survey responses, through how teachers' explicit beliefs about intelligence did not seem to accurately predict their associated beliefs regarding characteristics of intelligent behavior (see 5.1.2). A similar tendency was evident through the interview responses, in that knowledge of a teachers' tendency to incremental or entity view would not necessarily predict his/her related learning beliefs accurately (see 5.2.12).

It seems like the manifestation of incremental or entity beliefs was largely dependent on the totality of the individual teachers' belief structure as well as specific contextual factors. For instance, two teachers who held entity beliefs did not agree on the extent to which children of seeming low ability could improve academically (5.2.7), pointing to the influence by other, related beliefs, as well as the differential contexts (innate ability in Norway versus Australia) within which these beliefs were formed and expressed (see 3.5). Belief research (see 2.1.3) indicates that belief systems are un-hierarchical, and do not require internal or external consistency. Furthermore, the strengths of the connections between beliefs are based on affective as much as strictly logical factors (see 2.1.3). This indicates a strong influence by personal experiences on beliefs and belief structures.

A complex relationship between teachers' beliefs and their personal experiences throughout a lifetime, or their 'life stories' (see 5.2.11 and 8.2), seemed evident. These life stories served to explain and justify the teachers' beliefs (for themselves, mainly), and helped to maintain consistency in the case of seemingly contradicting beliefs. The complexity of the teachers' life stories served to explain the complexity of teachers' beliefs, as they were attached to corresponding individual life experiences. Furthermore, it seemed likely the strength and

stability of teachers' beliefs were related to the strength and stability of the specific experiences with which the beliefs were associated.

These findings illustrate one of the weaknesses of surveys as a research method, given how the researcher is unable to probe for associated beliefs. A solitary survey might not provide 'the whole picture' in terms of teachers' relevant, associated beliefs. This points to the value of employing several methods to obtain data related to beliefs. Successful use of a broad research approach was illustrated by Bullough and Baughman (1997) who teamed classroom observations with interviews (see 2.3.3).

In this regard, probing the teachers directly and explicitly for their own views and opinions proved a valuable method in the present project. Teachers' own narratives provided invaluable insights into their personal life worlds; in terms of the aspects they accentuated and stressed as well as the manner in which they did this. Furthermore, it brought interesting insight into the difference between explicit and implicit beliefs held by the participants. Theoretical developments such as constructivism have led away from the now-considered outdated view that reality is absolute and objective, and can be discovered by researchers. Rather, reality is seen as actively constructed by all the composite parts and actors, which highlights the importance of considering teachers' own narratives in relation to their educational beliefs.

#### **6.4.      *Concluding remarks***

The present project has employed mixed methods to investigate teachers' beliefs about intelligence in Norway and Australia. Through an online survey and interviews, three main research questions were investigated; namely the nature of teachers' beliefs about the modifiability of intelligence, whether these beliefs differed according to cultural context, and finally what the main influences on teachers' beliefs about intelligence were.

Results from an online survey and interviews indicated that teachers in Norway and Australia seemed to hold quite similar beliefs about the modifiability of intelligence, where most teachers in both countries tended to an incremental view of intelligence. Teachers' beliefs regarding the modifiability of intelligence seemed to be closely associated with teachers'

conceptions of intelligence, as well as associated beliefs regarding learning ability and learning outcome. This indicated the complex and interrelated nature of teachers' beliefs.

While most teachers in both countries tended to an incremental view, there was a tendency (in the survey) that teachers' responses varied according to the explicitness of the items. Teachers in both countries responded intelligence was more modifiable when probed in an implicit, rather than explicit, manner. Furthermore, the between-group differences were more pronounced on the explicit than the implicit items, where the Norwegian teachers gave incremental responses to a larger degree than their Australian peers on the explicit items. On the basis of previous research it was concluded that responses to the items more implicitly related to intelligence were likely related to the teachers' personal beliefs, while the items more explicitly related to intelligence were likely related to 'pedagogically correct' or 'textbook' beliefs.

The larger between-group differences on the more explicit items indicated that intelligence was a more controversial topic in Norway than Australia. This was further indicated through the discomfort displayed by some of the Norwegian teachers during the interviews, as well as how several Norwegian teachers exhibited concurrent, incompatible beliefs.

Responses from the interviews indicated the teachers' beliefs were related to their personal life experiences, which served to explain and/or justify their beliefs. It seemed like early experiences, for instance family life and childhood schooling experiences, had formed guiding images which influenced the teaching behaviors of several of the teachers.

These results have been discussed in relation to research on beliefs, as well as the educational contexts in Australia and Norway.

The present findings are clearly limited in terms of generalizability. An unexpectedly small survey sample meant the focus of the project had to be shifted from statistical testing of hypotheses (survey), backed up by in-depth examples and exploration (interviews), to general exploration of tendencies and relationships (survey and interviews). As such, the findings might serve as interesting insights into the complex relationships of beliefs, rather than tendencies that can be generalized to populations beyond the present sample. Furthermore, without employing methods that might objectively gauge the relationship between beliefs and



behavior (such as observations), it cannot be ascertained that teachers' stated beliefs are consistent with their classroom behaviors.

On the basis of the findings discussed, as well as concerns and limitations of the present project, some suggestions for future research might be made.

First of all, considering the tendency that teachers' responses varied according to the explicitness of the survey item, and the indication that teachers held contradicting implicit and explicit beliefs, further research concerning the influence by method on belief responses might be interesting. A possible project might be to compare how the *same group of teachers* would respond to different methods of investigation, for instance through a survey and interviews. Such a project might benefit from including classroom observations as well as interviews, in order to investigate to which degree which beliefs would work as dominant influences on teachers' behaviors in the classroom.

Given the tentative results concerning the impact of school context in terms of students' ability levels, a larger survey investigating the influence by immediate surroundings, for instance student and school characteristics, would also be interesting.



## 7. References

- Abram, S. (2008). *Reproducing the Norwegian Myth: Egalitarianism and the Normal*. Leeds: Centre for Tourism and Cultural Change (CTCC).
- Anderman, E. M., & Wolters, C. A. (2006). Goals, values, and affect: Influences on student motivation. In P. A. Alexander & P. H. Winne (Eds.), *Handbook of educational psychology* (Second ed.). Mahwah, New Jersey: Lawrence Erlbaum Associates.
- Antikainen, A. (2006). In search of the Nordic Model in education. *Scandinavian journal of educational research*, 50(3), 229-243.
- Argy, F. (2003). *Where to from here? Australian egalitarianism under threat*. Crows Nest: Allen and Undwin.
- Bakken, A. (2010). *Prestasjonsforskjeller i Kunnskapsløftets første år - kjønn, minoritetsstatus og foreldres utdanning*. Kunnskapsdepartementet. NOVA - Norsk institutt for forskning om oppvekst, velferd og aldring.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Barcan, A. (1980). *A history of Australian education*. Melbourne: Oxford University Press.
- Bates, R. (1992). *The emerging culture of educational administration and what we can do about it*. Paper presented at the The national conference of the Australian council for educational administration.
- Berry, R. A. W. (2006). Beyond strategies: Teacher beliefs and writing instruction in two primary inclusion classrooms. *Journal of learning disabilities*, 39(1), 11.
- Braathe, H. J., & Ongstad, S. (2001). Egalitarianism meets ideologies of mathematical education - instances from Norwegian curricula and classrooms. *ZDM*, 33(5).
- Breckler, S. J., & Wiggins, E. C. (1989). Affect versus evaluation in the structure of attitudes. *Journal of experimental social psychology*, 25, 253-271.
- Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology*, 22(6), 723-742.
- Bruhn, T. J. (2005). *"I am an island to myself": How one veteran English teacher's beliefs, experience, and philosophy translate into classroom practice* (PhD dissertation) Georgia State University, Atlanta.
- Bruner, J. (1996). *The culture of education*. Cambridge, MA: Harvard University Press.
- Bruning, R. H., Schraw, G. J., & Ronning, R. R. (1999). *Cognitive psychology and instruction* (Third ed.). Upper Saddle River, NJ: Prentice-Hall.
- Bryman, A. (2008). *Social research methods* (3rd ed.). New York: Oxford University Press.
- Bråten, I., & Olaussen, B. S. (1998). The Relationship between Motivational Beliefs and Learning Strategy Use among Norwegian College Students. *Contemporary Educational Psychology*, 23, 182-194.
- Bråten, I., & Strømsø, H. I. (2004). Epistemological beliefs and implicit theories of intelligence as predictors of achievement goals. *Contemporary Educational Psychology*, 29, 371-388.
- Bullough, R. V., & Baughman, K. (1997). *"First-year teacher": Eight years later. An inquiry into teacher development*. New York: Teachers College Press.
- Butler, R. (2000). Making judgments about ability: The role of implicit theories of ability in moderating inferences from temporal and social comparison information. *Journal of personality and social psychology*, 78(5), 965-978.
- Chan, K.-w., & Elliott, R. G. (2004). Epistemological beliefs across cultures: Critique and analysis of beliefs structure studies. *Educational psychology* 24(2).
- Chen, C.-H. (2008). Why do teachers not practice what they believe regarding technology integration? *The journal of educational research*, 102(1).

- Dahle, D. Y. (2008, 15.07). Vil etablere egne realfagskoler. *Teknisk Ukeblad*, Retrieved 20.11.2010 from <http://www.tu.no/karriere/article174090.ece>.
- Deal, D., & White, C. S. (2006). Voices from the classroom: Literacy beliefs and practices of two novice elementary teachers. *Journal of research in childhood education*, 20(4), 313.
- DET (2009). *2009 DET directory*. Sydney: New South Wales Department of Education and Training.
- DFAT. (2008). Australia in brief: Excellence in education. Retrieved 23.03, 2010, from <http://www.dfat.gov.au/aib/education.html>
- Dweck, C. S. (2002). The development of ability conceptions. In A. Wigfield & J. S. Eccles (Eds.), *Development of achievement motivation*. San Diego: Academic Press.
- Dweck, C. S. (2008). *Self-theories: Their role in motivation, personality, and development*. Philadelphia: Psychology Press.
- Dweck, C. S., Chiu, C., & Hong, Y. (1995). Implicit theories and their role in judgments and reactions: A world from two perspectives. *Psychological inquiry*, 6, 267-285.
- Dweck, C. S., & Legget, E. S. (1988). A social-cognitive approach to motivation and personality. *Psychological review*, 95, 256-273.
- Ericsson, K. A., & Kintsch, W. (1995). Long-term working memory. *Psychological review*, 102, 211-245.
- Eurydice (2006). *Specific educational measures to promote all forms of giftedness at school in Europe; working document*. Brussels: European Commission; Directorate-general for education and culture.
- Fenstermacher, G. D. (1979). A philosophical consideration of recent research on teacher effectiveness. In L. S. Schulman (Ed.), *Review of research in education* (Vol. 6, pp. 157-185). Itasca, IL: Peacock.
- Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. New York: Basic Books.
- Green, T. (1971). *The activities of teaching*. New York: MacGraw-Hill.
- Gross, M. (2010). GERRIC: Gifted education research, resource and information centre. University of New South Wales: Arts and Social Sciences. Retrieved 21.11.2010 from <http://gerric.arts.unsw.edu.au/>
- Gullestad, M. (2006). *Plausible prejudice: Everyday experiences and social images of nation, culture and race*. Oslo: Universitetsforlaget.
- Handal, G., & Lauvås, P. (1999). *På egne vilkår. En strategi for veiledning med lærere*. Oslo: Cappelen Akademisk Forlag.
- Hansen, E. J. (1973). The problem of equality in the Danish educational structure. *Acta Sociologica*, 16(4), 258-278.
- Haser, C. i. d., & Star, J. R. (2009). Change in beliefs after first-year of teaching: The case of Turkish national curriculum context. *International journal of educational development*, 29, 293-302.
- Hashweh, M. Z. (1996). Effects of science teachers' epistemological beliefs in teaching. *Journal of research in science teaching*, 33(1), 46-63.
- Hirst, J. (1989). Egalitarianism. In S. L. Goldberg & F. B. Smith (Eds.), *Australian cultural history* (pp. 58-77). Cambridge: Cambridge University Press.
- Ho, I. T. (2004). A comparison of Australian and Chinese teachers' attributions for student problem behaviors. *Educational Psychology*, 24(3).
- Hofer, B. K., & Pintrich, P. R. (1997). The development of epistemological theories: Beliefs about knowledge and knowing and their relation to learning. *Review of educational research*, 67, 88-140.

- Hoy, A. W., Davis, H., & Pape, S. J. (2006). Teacher knowledge and beliefs. In P. A. Alexander & P. H. Winne (Eds.), *Handbook of Educational Psychology* (Second ed.). Mahwah: Lawrence Erlbaum Associates.
- Hoy, A. W., Hoy, W. K., & Davis, H. A. (2009). Teachers' self-efficacy beliefs. In A. Wigfield & K. R. Wentzel (Eds.), *Handbook of motivation in school*. New York: Routledge.
- Høigård, E., Ruge, H., & Hansen, K. I. (1971). *Den norske skoles historie: En oversikt* (3 ed.). Oslo: J.W. Cappelens forlag as.
- Jenssen, E. S., & Lillejord, S. (2009). Tilpasset opplæring: politisk dragkamp om pedagogisk praksis. *Acta Didactica Norge*, 3(1).
- Jordan, A., Glenn, C., & McGhie-Richmond, D. (2010). The supporting effective teaching (SET) project: The relationship of inclusive teaching practices to teachers' beliefs about disability and ability, and about their roles as teachers. *Teaching and teacher education*, 26, 259-266.
- Jordell, K. Ø. (1987). Structural and personal influences in the socialization of beginning teachers. *Teaching and teacher education*, 3, 165-177.
- Kagan, D. M. (1992). Implication of research on teacher belief. *Educational Psychologist*, 27(1), 65-90.
- Kapferer, B. (2003, December 13-14 2003). *The Australian society of the state: Egalitarian ideologies and new directions in exclusionary practice*. Paper presented at the Blurred Boundaries: Rethinking 'Culture' in the context of interdisciplinary practices, Academia Sinica, Taipei, Taiwan.
- Kaplan, A. O., & Akgul, E. M. (2009). Prospective elementary science teachers' epistemological beliefs. *Procedia social and behavioral sciences*, 1.
- Karlsen, A. (2010). Muslimer vil åpne egne skoler i Oslo [Electronic Version]. *Aftenposten*. Retrieved 15.11.2010 from <http://www.aftenposten.no/nyheter/iriks/article3901051.ece>.
- Kjernsli, M., Lie, S., Olsen, R. V., & Roe, A. (2007). *Tid for tunge løft: Norske elevers kompetanse i naturfag, lesing og matematikk i PISA 2006*. Oslo: Universitetsforlaget.
- Krekling, D. V. (2010, 01.11.2010). Mer til musikk enn vitenskap. *NRK nyheter*, Retrieved 15.11.2010 from <http://www.nrk.no/nyheter/verden/1.7362396>.
- Kunnskapsdepartementet. (2010). *Matematikk for alle, ... men alle behøver ikke å kunne alt. Idédokument*: Kunnskapsdepartementet.
- Kyles, C. R., & Olafson, L. (2008). Uncovering preservice teachers' beliefs about diversity through reflective writing. *Urban education*, 43(5), 500-518.
- Lewis, H. (1990). *A question of values*. San Fransisco: Harper & Row.
- Lie, S., Linnakylä, P., & Roe, A. (2003). Northern lights on PISA. In S. Lie, P. Linnakylä & A. Roe (Eds.), *Northern lights on PISA: Unity and diversity in the nordic countries in PISA 2000*. Oslo: Department of teacher education and school development, University of Oslo.
- Lortie, D. C. (1975). *Schoolteacher: A sociological study*. Chicago: The University of Chicago Press.
- Luke, A. (1997). New narratives of human capital: Recent redirections in Australian educational policy. *Australian Educational Researcher*.
- Mathiesen, S. W., Holte, M., & Mehli, H. (2006). *Evalueringsrapport: Tilpasset opplæring i realfag for elever med særskilt behov for utfordringer.*: Skolelaboratoriet NTNU
- McInerney, D. M. (2005). Educational psychology - Theory, research, and teaching: A 25-year retrospective. *Educational Psychology*, 25(6), 585-599.

- Mediås, O. A. (2004). *Enhetsskolens utvikling i Danmark og Norge: Allmueskolen/folkeskolen/grunnskolen i utvikling fra de første skolelover og fram til år 2003*. Aalborg: Aalborg Universitetsforlag.
- Midgley, C., Feldlaufer, H., & Eccles, J. S. (1989). Change in teacher efficacy and student self- and task-related beliefs in mathematics during the transition to junior high school. *Journal of educational psychology*, 81(2), 247-258.
- Minor, L. C., Onwuegbuzie, A. J., Witcher, A. E., & James, T. L. (2002). Preservice teachers' educational beliefs and their perceptions of characteristics of effective teachers. *The journal of educational research*, 96(2).
- Muchmore, J. A. (1994). A statewide survey of the beliefs and practices of Chapter 1 reading teachers. *Remedial and special education*, 15, 252.
- Munby, H. (1982). The place of teachers' beliefs in research on teacher thinking and decision making, and an alternative methodology. *Instructional Science*, 11, 201-225.
- NAA. (2010). Documenting a democracy. Australian commonwealth; National Archives of Australia. Retrieved 22.11, 2010, from <http://www.foundingdocs.gov.au/item.asp?sdID=78>
- Nespor, J. (1987). The role of beliefs in the practice of teaching. *Journal of curriculum studies*, 19(4), 317-328.
- Nias, J. (1986). *Teacher socialization: The individual in the system*. Geelong, Australia: Deakin University Press.
- Nisbett, R., & Ross, L. (1980). *Human inference: Strategies and shortcomings of social judgment*. Englewood Cliffs, NJ: Prentice-Hall.
- NSWTeachersFederation. (2002). *Inquiry into the provision of public education in New South Wales* (No. 3). Sydney: New South Wales teachers federation.
- Pajares, M. F. (1992). Teachers' Beliefs and Educational Research: Cleaning Up a Messy Construct. *Review of educational research*, 62(3), 307-332.
- Piaget, J. (1954). *The construction of reality in the Child*. 2002 reprint. Oxon: Routledge.
- Potts, A. (1999). Public and private schooling in Australia - Historical and contemporary considerations. Retrieved 10.3, 2010, from <http://www.history.ac.uk/resources/e-seminars/potts-paper>
- Poulou, M. (2007). Personal teaching efficacy and its sources: Student teachers' perceptions. *Educational Psychology*, 27(2), 191-218.
- ProblemFree.co.UK. (2010). FreeOnlineSurveys.com. Retrieved 01/03/2010, 2010, from <http://freeonlinesurveys.com>
- Rhodewalt, F. (1994). Conceptions of ability, achievement goals, and individual differences in self-handicapping behavior: On the application of implicit theories. *Journal of personality* 62, 67-76.
- Richardson, V. (1996). *The role of attitudes and beliefs in learning to teach*. New York: Macmillan.
- Richardson, V., Anders, P., Tidwell, D., & Lloyd, C. (1991). The relationship between teachers' beliefs and practices in reading comprehension instruction. *American Educational Research Journal*, 28(3), 559-586.
- Roe, A., & Solheim, R. G. (2007). *PISA og PIRLS: Om norske elevers leseresultater*. Utdanningsdirektoratet, mediehuset Gan.
- Rokeach, M. (1968). *Beliefs, attitudes and values: A theory of organization and change*. San Francisco: Jossey-Bass.
- Rosenfeld, M., & Rosenfeld, S. (2008). Developing effective teacher beliefs about learners: The role of sensitizing teachers to individual learning differences. *Educational Psychology*, 28(3), 245-272.

- Rosenthal, R., & Jacobsen, L. (1965). Pygmalion in the classroom. Reprint. *The urban review*, 16-20.
- Rosnow, R. L., & Rosenthal, R. (1997). *People studying people: Artifacts and ethics in behavioral research*. New York: W. H. Freeman and company.
- Sacks, C. H., & Mergendoller, J. R. (1997). The relationship between teachers' theoretical orientation toward reading and student outcomes in kindergarten children with different initial reading abilities. *American Educational Research Journal*, 34(4), 721-739.
- Schacter, D. L. (2001). *The seven sins of memory: How the mind forgets and remembers*. Boston: Houghton Mifflin Company.
- Schommer-Aikins, M. (2002). An evolving theoretical framework for an epistemological belief system. In B. K. Hofer & P. R. Pintrich (Eds.), *Personal Epistemology: The psychology of beliefs about knowledge and knowing*. Mahwah, New Jersey: Lawrence Erlbaum Associates.
- Schommer, M. (1990). Effects of beliefs about the nature of knowledge on comprehension. *Journal of educational psychology*, 82, 498-504.
- Schommer, M. (1994). Synthesizing epistemological belief research: Tentative understandings and provocative confusions. *Educational psychology review*, 6(4).
- Schraw, G. (2006). Knowledge: Structures and processes. In P. A. Alexander & P. H. Winne (Eds.), *Handbook of educational psychology* (Second ed.). Mahwah, New Jersey: Lawrence Erlbaum Associates.
- Schunk, D. H., & Zimmerman, B. J. (2006). Competence and control beliefs: Distinguishing the means and ends. In P. A. Alexander & P. H. Winne (Eds.), *Handbook of educational psychology* (Second ed.). Mahwah, New Jersey: Lawrence Erlbaum Associates.
- SenateCommitteeReports. (2004). *The education of gifted and talented children: Summary and recommendations*. Canberra: The Parliament of the Commonwealth of Australia.
- SenateSelectCommittee. (1988). *The education of gifted and talented children*. Canberra: The Parliament of the commonwealth of Australia.
- Sinatra, G. M., & Kardash, C. M. (2004). Teacher candidates' epistemological beliefs, dispositions, and views on teaching as persuasion. *Contemporary Educational Psychology*, 29, 483-498.
- SSB. (2010a). Municipal fact sheet - Akershus (Statistisk Sentral Byrå). Retrieved 15.11.2010 from <http://www.ssb.no/english/municipalities/region.cgi?nr=02>
- SSB. (2010b). Public finances (Statistisk Sentral Byrå). Retrieved 15.11.2010 from [http://www.ssb.no/english/subjects/12/off\\_finans\\_en/](http://www.ssb.no/english/subjects/12/off_finans_en/)
- Staub, F. C., & Stern, E. (2002). The nature of teachers' pedagogical content beliefs matters for students' achievement gains: Quasi-experimental evidence from elementary mathematics. *Journal of educational psychology*, 94(2), 344-355.
- Sternberg, R. J., Conway, B. E., Ketron, J. L., & Bernstein, M. (1981). People's conceptions of intelligence. *Journal of personality and social psychology*, 41, 37-55.
- Stipek, D. (2002). *Motivation to learn: Integrating theory and practice*. Boston: Allyn and Bacon.
- Sweller, J. (1999). *Instructional design in technical areas*: ACER press.
- Thompson, E. (1994). *Fair enough: egalitarianism in Australia*. Sydney: University of New South Wales Press.
- Tillema, H. H. (2000). Belief change towards self-directed learning in student teachers: Immersion in practice or reflection on action. *Teaching and teacher education*, 16, 575-591.



- Tomchin, E. M., & Impara, J. C. (1992). Unraveling teachers' beliefs about grade retention. *American Educational Research Journal*, 29(1), 199-223.
- Tournaki, N., & Podell, D. M. (2005). The impact of student characteristics and teacher efficacy on teachers' predictions of student success. *Teaching and teacher education*, 21, 299-314.
- Tschannen-Moran, M., & Hoy, A. W. (2007). The differential antecedents of self-efficacy beliefs of novice and experienced teachers. *Teaching and teacher education*, 23, 944-956.
- Tschannen-Moran, M., Hoy, A. W., & Hoy, W. K. (1998). Teacher efficacy: Its meaning and measure. *Review of educational research*, 68(2), 202.
- Undheim, J. O., Nordvik, H., Gustafsson, K., & Undheim, A. M. (1995). Academic achievements of high-ability students in egalitarian education: a study of able 16-year-old students in Norway. *Scandinavian journal of educational research*, 39(2).
- Utdanningsdirektoratet. (2010). Skoleporten. Retrieved 21.11.2010 from <http://skoleporten.utdanningsdirektoratet.no/default.aspx>
- Vislie, L. (2004). Spesialpedagogikkens vilkår under moderniteten. *Utbildning og demokrati*, 13(2), 13-44.
- Weinstein, C. S. (1990). Prospective elementary teachers' beliefs about teaching: Implications for teacher education. *Teaching and teacher education*, 6(3), 279-290.
- Wideen, M., Mayer-Smith, J., & Moon, B. (1998). A critical analysis of the research on learning to teach: Making the case for an ecological perspective on inquiry. *Review of educational research*, 68(2), 130-178.
- Wigfield, A., & Eccles, J. S. (2002). The development of competence beliefs, expectancies for success, and achievement values from childhood through adolescence. In A. Wigfield & J. S. Eccles (Eds.), *Development of achievement motivation*. San Diego: Academic Press.
- Wilcox-Herzog, A. (2002). Is there a link between teachers' beliefs and behaviors? *Early education and development*, 13(1).
- Wilkinson, J. (2008). Education in country and city NSW. *NSW Parliamentary library services, Briefing paper no 4*.
- Williamson, J., & Galton, M. (1998). Building a school culture. In T. Townsend (Ed.), *The primary school in changing times: The Australian experience*. London: Routledge.
- Woolfolk-Hoy, A., Davis, H., & Pape, S. J. (2006). Teacher knowledge and beliefs. In P. A. Alexander & P. H. Winne (Eds.), *Handbook of Educational Psychology* (Second ed.). Mahwah: Lawrence Erlbaum Associates.
- Woolfolk-Hoy, A., Hoy, W. K., & Davis, H. A. Teachers' self-efficacy beliefs. In K. Wentzel & A. Wigfield (Eds.), *Handbook of motivation in school*. Mahwah, New Jersey: Lawrence Erlbaum.
- Woolfson, L. M., & Brady, K. (2009). An investigation of factors impacting on mainstream teachers' beliefs about teaching students with learning difficulties. *Educational Psychology*, 29(2), 221-238.
- Zeichner, K., & Gore, J. (1990). Teacher socialization. In W. R. Houston (Ed.), *Handbook of research on teacher education* (pp. 329-348). New York: Macmillan.



## 8. Appendices

### 8.1. *Teachers' characteristics (survey)*

Looking at the distribution of teachers in the two countries across the background variables, it is important to keep in mind the very small number of Australian respondents. Any comparisons made are thus very tentative; if only one of the Australian respondents had replied differently in either item, this would have accounted for a near 17% change in the total responses from that country.

**Country teaching in \* Gender Crosstabulation**

			Gender		
			Male	Female	Total
Country teaching in	Australia	Count	1	5	6
		% within Country teaching in	16.7%	83.3%	100.0%
	Norway	Count	4	17	21
		% within Country teaching in	19.0%	81.0%	100.0%
	Total	Count	5	22	27
		% within Country teaching in	18.5%	81.5%	100.0%

**Table 6 Teacher characteristics: Gender**

In both countries there were more female than male respondents, with more than 80 % female teachers in each country. This might be an accurate reflection of a relatively female dominated profession in both countries.

**Country teaching in \* Where did you grow up? Crosstabulation**

			Where did you grow up?			
			Nor/Oz	Nearby	Other	Total
Country teaching in	Australia	Count	4	0	2	6
		% within Country	66.7%	.0%	33.3%	100.0%
	Norway	Count	19	1	1	21
		% within Country	90.5%	4.8%	4.8%	100.0%
	Total	Count	23	1	3	27
		% within Country	85.2%	3.7%	11.1%	100.0%

**Table 7 Teacher characteristics: Upbringing**

Nearly all the teachers (20 out of 21, or 95%) working in Norway reported having grown up in Norway or Scandinavia. One teacher had grown up in the Netherlands, but had lived in Norway for more than 20 years. 4 out of 6 teachers working in Australia had grown up in the country, while 2 had grown up overseas, namely in the US and Germany. They had lived in Australia for more than 20 years and between 5 and 9 years, respectively.

**Country teaching in \* How many years in the country? Crosstabulation**

			How many years in the country?			
			5-9 years	10-20 years	More than 20 years	Total
Country teaching in	Australia	Count	1	0	1	2
		% within Country	50.0%	.0%	50.0%	100.0%
	Norway	Count	0	1	2	3
		% within Country	.0%	33.3%	66.7%	100.0%
	Total	Count	1	1	3	5
		% within Country	20.0%	20.0%	60.0%	100.0%

**Table 8 Teacher characteristics: How many years lived in the country**

**Country teaching in \* Age Crosstabulation**

			Age				
			25-35	36-45	46-55	56-65	Total
Country teaching in	Australia	Count	2	0	1	3	6
		% within Country	33.3%	.0%	16.7%	50.0%	100.0%
	Norway	Count	13	3	5	0	21
		% within Country	61.9%	14.3%	23.8%	.0%	100.0%
	Total	Count	15	3	6	3	27
		% within Country	55.6%	11.1%	22.2%	11.1%	100.0%

**Table 9 Teacher characteristics: Age**

The Norwegian teachers were relatively young, with 13 out of 21 (62%) between 25 and 35 years of age. None of the Norwegian teachers were older than 55 years of age. Amongst the Australian respondents the 3 out of 6 teachers (50%) were between 56 and 65 years of age, leading to a relatively older sample of teachers than in Norway. Looking at it in another way, 16 out of 21 (76%) of the Norwegian teachers were between 25 and 45 years old, while 4 out

of 6 (67%) of the Australian teachers were between 46 and 65 years of age. None of the teachers were under 25 or over 65 years old.

**Country teaching in \* How many years as a teacher? Crosstabulation**

			How many years as a teacher?					
			Less than 1 year	1-2 years	3-5 years	6-10 years	11-20 years	More than 20 years
Country teaching in	Australia	Count	0	1	0	1	1	3
		% within	.0%	16.7%	.0%	16.7%	16.7%	50.0%
	Norway	Count	1	3	4	5	7	1
		% within	4.8%	14.3%	19.0%	23.8%	33.3%	4.8%
	Total	Count	1	4	4	6	8	4
		% within	3.7%	14.8%	14.8%	22.2%	29.6%	14.8%

**Table 10 Teacher characteristics: How many years worked as a teacher**

The Australian teachers were also relatively more experienced than the Norwegian ones, which might be expected given the older age distribution. 3 out of 6 (50 %) Australian teachers had worked for more than 20 years. One Norwegian teacher (5%) had the equivalent experience. The Norwegian teachers were relatively normally distributed in terms of years of teacher experience, with a peak of 7 out of 21 (33 %) teachers having worked between 11 and 20 years. 12 out of 21 (57 %) Norwegian teachers had been between 6 and 20 years in the job.

**Country teaching in \* How many years in current school? Crosstabulation**

			How many years in current school?					
			Less than 1 year	1-2 years	3-5 years	6-10 years	11-20 years	More than 20 years
Country teaching in	Australia	Count	0	2	0	1	3	0
		% within	.0%	33.3%	.0%	16.7%	50.0%	.0%
	Norway	Count	2	3	5	8	2	1
		% within	9.5%	14.3%	23.8%	38.1%	9.5%	4.8%
	Total	Count	2	5	5	9	5	1
		% within	7.4%	18.5%	18.5%	33.3%	18.5%	3.7%

**Table 11 Teacher characteristics: How many years worked in current school**

3 out of 6 (50%) of the Australian teachers reported having worked at the same school between 11 and 20 years, while 3 out of 21 (14%) among the Norwegian teachers had been working at the same school for more than 11 years. While this difference is quite substantial when it comes to percentages, the fact that the actual number of teachers is the same across countries demonstrates how fragile these comparisons are due to the low number of Australian teachers participating. The teachers working in Norway were, again, relatively normally distributed, ranging from having worked less than one year and more than 20 years at their current school. Most of the Norwegian teachers had worked between 3 and 10 years at the same school, with 13 out of 21 (62%) teachers reporting this.

**Country teaching in \* School size Crosstabulation**

			School size				
			100-200 students	201-300 students	301-400 students	More than 400 students	Total
Country	Australia	Count	1	2	2	1	6
		% within	16.7%	33.3%	33.3%	16.7%	100.0%
	Norway	Count	0	4	16	1	21
		% within	.0%	19.0%	76.2%	4.8%	100.0%
	Total	Count	1	6	18	2	27
		% within	3.7%	22.2%	66.7%	7.4%	100.0%

**Table 12 Teacher characteristics: Size of current school**

While the teachers in Australia were spread relatively evenly across schools in terms of school sizes, most of the Norwegian teachers worked at schools with between 301 and 400 students. 16 out of 21 (76%) of the Norwegian teachers reported this. None of the Norwegian teachers worked at a school with less than 200 students.

**Country teaching in \* Grade level primarily teach at Crosstabulation**

			Grade level primarily teach at								
			1	2	3	4	5	6	7	Other	Total
Country	Australia	Count	0	1	1	2	0	1	0	1	6
		% within	.0%	16.7%	16.7%	33.3%	.0%	16.7%	.0%	16.7%	100.0%
	Norway	Count	4	4	2	2	4	2	2	1	21
		% within	19.0%	19.0%	9.5%	9.5%	19.0%	9.5%	9.5%	4.8%	100.0%

Total	Count	4	5	3	4	4	3	2	2	27
	% within	14.8%	18.5%	11.1%	14.8%	14.8%	11.1%	7.4%	7.4%	100.0%

**Table 53 Teacher characteristics: Grade level primarily teach at**

The teachers in both countries were distributed relatively evenly across all grade levels. One teacher in Australia reported working roughly equal hours in grades 2, 4 and 6, and one teacher in Norway reported working as a subject teacher in grade 8 as well as in primary school.

**Country teaching in \* Subjects primarily teach Crosstabulation**

			Subjects primarily teach					
			Mathematics	First language	Languages*	Creative Arts**	Science	PE***
Country	Australia	Count	6	5	0	0	0	0
		% within	100.0%	83.3%	.0%	.0%	.0%	.0%
	Norway	Count	9	11	5	4	2	1
		% within	42.9%	52.4%	23.8%	19.0%	9.5%	4.8%
	Total	Count	15	16	5	4	2	1
		% within	55.6%	59.3%	18.5%	14.8%	7.4%	3.7%

**Table 14 Teacher characteristics: Subjects primarily teach**

\* The teachers who reported working with this were all teachers of English as a 2nd language.

\*\* This is coded to encompass the Norwegian subject Music. 2 of the respondents taught Music and 2 Creative Arts.

\*\*\* Personal development, health and Physical Education (PE). The respondent that chose this, however, reported working with the Norwegian subject "Kroppsøving", which is similar to PE.

When asked whether there were one or two subjects they taught more than other subjects, and directed to cross off for a maximum of 2 subjects, all 6 (100%) Australian teachers reported teaching mathematics. In addition, all but one Australian teacher taught English as well. None of the teachers in Australia crossed off for any subjects other than mathematics or English. The Norwegian teachers reported primarily teaching a larger variety of subjects, where mathematics, Norwegian, languages, creative arts, science and physical education (PE) were all selected by one or more teachers. 5 out of 21 (23.8%) teachers in Norway taught both Mathematics and Norwegian, while 4 (19%) teachers taught Norwegian and English both. 4

teachers working in Norway did not select any subjects, suggesting that they taught all subjects equally. These teachers were all teaching in either the 1<sup>st</sup> or 2<sup>nd</sup> grades, indicating that in some primary schools it is normal for teachers to follow their students in all classes the first couple of years.

**Country teaching in \* School performance Crosstabulation**

			School performance			
			Below average	Average	Above average	Total
Country teaching in	Australia	Count	1	2	3	6
		% within	16.7%	33.3%	50.0%	100.0%
	Norway	Count	5	15	1	21
		% within	23.8%	71.4%	4.8%	100.0%
	Total	Count	6	17	4	27
		% within	22.2%	63.0%	14.8%	100.0%

**Table 15 Teacher characteristics: School performance**

When it came to school performance, teachers were first asked to rate their schools in terms of student performance, compared to either regional (Norway; Akershus) or state (Australia; NSW) levels. They were then asked whether they were aware of any test scores backing up their view. Half the teachers (3 out of 6, 50%) in Australia reported working at an above average school, while only one teacher (1 out of 21, 5%) in Norway reported the same. More than 70% (15 out of 21) of the Norwegian teachers rated their school as average. Looking at it in another way; in Australia, 5 out of 6 (83%) of the teachers rated their school as average or above, while in Norway 20 out of 21 (95%) rated their schools as average or below.

**Country teaching in \* Aware of test scores Crosstabulation**

			Aware of test scores					
			School-level	Regional	State	National	International	Total
Country teaching in	Australia	Count	0	0	0	6	0	6
		% within	.0%	.0%	.0%	100.0%	.0%	100.0%
	Norway	Count	5	3	0	12	1	21
		% within	23.8%	14.3%	.0%	57.1%	4.8%	100.0%

Total	Count	5	3	0	18	1	27
	% within	18.5%	11.1%	.0%	66.7%	3.7%	100.0%

**Table 16 Teacher characteristics: Awareness of test scores**

All teachers reported being aware of tests backing up their views. In Australia, 6 out of 6 teachers reported basing their judgment on tests at the national level. More than half (12 out of 21, 57%) of the teachers working in Norway reported the same thing, while 8 (38%) reported being backed up by tests at either school or regional levels.

**Country teaching in \* Student performance Crosstabulation**

			Student performance				
			Below average	Average	Above average	Don't know	Total
Country teaching in	Australia	Count	0	4	2	0	6
		% within	.0%	66.7%	33.3%	.0%	100.0%
	Norway	Count	1	11	7	2	21
		% within	4.8%	52.4%	33.3%	9.5%	100.0%
	Total	Count	1	15	9	2	27
		% within	3.7%	55.6%	33.3%	7.4%	100.0%

**Table 17 Teacher characteristics: Student performance**

When asked how the students they primarily taught compared to other students at the school they worked at, the answers showed a somewhat similar distribution to the question regarding school performance. This time all the Australian teachers rated their students as average or above average. While more than half (11 out of 21, 52%) of the Norwegian teachers still rated their students as average, 7 teachers (33%) rated their students as above average. Two Norwegian teachers were not sure how their students ranked at their schools.

Item number 15, concerning 'cultural belonging', was designed purposely for the present project. Tables 13 to 16 show the distribution of responses to the statements included in this item.

**Country teaching in \* I consider myself typical Crosstabulation**

			I consider myself typical			
			Somewhat true to me	Quite true to me	Completely true to me	Total
Country teaching in	Australia	Count	3	2	1	6
		% within	50.0%	33.3%	16.7%	100.0%
	Norway	Count	2	9	10	21
		% within	9.5%	42.9%	47.6%	100.0%
	Total	Count	5	11	11	27
		% within	18.5%	40.7%	40.7%	100.0%

**Table 18 Cultural belonging: I consider myself typical****Country teaching in \* I feel strong affinity with another group Crosstabulation**

			I feel strong affinity with another group					
			Not at all true to me	Not very true to me	Somewhat true to me	Quite true to me	Completely true to me	Total
Country teaching in	Australia	Count	2	0	1	2	1	6
		% within	33.3%	.0%	16.7%	33.3%	16.7%	100.0%
	Norway	Count	15	4	1	1	0	21
		% within	71.4%	19.0%	4.8%	4.8%	.0%	100.0%
	Total	Count	17	4	2	3	1	27
		% within	63.0%	14.8%	7.4%	11.1%	3.7%	100.0%

**Table 19 Cultural belonging: I feel strong affinity with another group****Country teaching in \* Although I live here I do not feel typical Crosstabulation**

			Although I live here I do not feel typical				
			Not at all true to me	Not very true to me	Somewhat true to me	Completely true to me	Total
Country teaching in	Australia	Count	3	2	0	1	6
		% within	50.0%	33.3%	.0%	16.7%	100.0%
	Norway	Count	18	2	1	0	21
		% within	85.7%	9.5%	4.8%	.0%	100.0%
	Total	Count	21	4	1	1	27
		% within	77.8%	14.8%	3.7%	3.7%	100.0%

**Table 20 Cultural belonging: Although I live here I do not feel typical**



**Country teaching in \* I belong to several groups Crosstabulation**

			I belong to several groups					
			Not at all true to me	Not very true to me	Somewhat true to me	Quite true to me	Completely true to me	Total
Country	Australia	Count	2	0	1	2	1	6
		% within	33.3%	.0%	16.7%	33.3%	16.7%	100.0%
	Norway	Count	17	2	0	2	0	21
		% within	81.0%	9.5%	.0%	9.5%	.0%	100.0%
	Total	Count	19	2	1	4	1	27
		% within	70.4%	7.4%	3.7%	14.8%	3.7%	100.0%

**Table 21 Cultural belonging: I belong to several groups**

The responses to item 15 ('cultural belonging') demonstrated that most of the teachers included in the study felt cultural affinity to the country within which they worked. When presented with the statement "I consider myself an average and typical Australian/Norwegian citizen" (table 18) all teachers in both countries responded with either "somewhat true to me", "quite true to me" or "completely true to me". There was a slight difference between the countries where 3 out of 6 (50%) Australian teachers said the statement was "somewhat true to me", while 10 out of 21 (48%) of the Norwegian teachers said the same statement was "completely true to me", indicating that the teachers working in Norway felt more typical than their Australian counterparts. The responses to the statement "Although I live in Australia/Norway I do not feel very 'Australian'/'Norwegian'" (table 20) showed similar tendencies, where 18 out of 21 (86%) of the Norwegian, and 3 out of 6 (50%) of the Australian teachers responded "not at all true to me". These numbers largely correspond with the number of Norwegian and Australian teachers who responded either "quite true to me" or "completely true to me" when presented with the statement "I consider myself an average and typical Australian/Norwegian citizen" (see above).

At the same time, 3 out of 6 (50%) Australian teachers responded either "quite true to me" or "completely true to me" to the statement "I feel strong affinity with a cultural group other than 'Australian' / 'Norwegian'" (table 19), which might explain this difference. Similarly, 3 Australian teachers responded either "quite true to me" or "completely true to me" to the statement "I belong equally to several cultural groups, 'Australian'/'Norwegian' being one of them" (table 21). Out of these respondents in Australia, one was from the US and another

from Germany, originally. They both felt affinity with the Australian culture as well as another, presumably their country of birth and upbringing. A similar pattern of responses was seen from the teacher working in Norway which was born in Scandinavia, but not Norway; this teacher also reported feeling affinity with another cultural group as well as “Norwegian”.

## **8.2. Teachers' life stories (interviews)**

*Due to confidentiality requirements this section has been removed in the present version of the thesis.*

### **8.3. Letter to principals – Australia**

Dear Sir/Madam,

My name is Karin Sørli, and I am a master student at the University of Oslo, Norway. I am seeking permission to include teachers from your school in my research project. The study is based on an online survey and some follow-up interviews.

I am investigating teachers' beliefs about intelligence, and conducting research in both Norway and Australia. I am interested in whether teachers' beliefs differ with country and culture, and/or if there are other factors determining the beliefs they hold.

Much research has been conducted on the various beliefs people hold, amongst other in relation to the nature of intelligence and knowledge, and the impact these beliefs have on subsequent learning strategies. Furthermore, considerable research has demonstrated a strong relationship between teachers' beliefs and teachers' behaviors. Teachers exert a strong influence on schoolchildren, and thus their beliefs, including their beliefs about intelligence, are important.

It would be greatly appreciated if you would give permission for teachers at your school to participate in this study. It is designed to have minimal disruption. The survey takes about 15 minutes to complete, and the teachers may "log on" to the survey at their leisure. I will also conduct a small number of interviews, hopefully a couple at each school, which will take approximately one hour. Although I cannot promise or guarantee any benefits, it is likely that partaking teachers will come to investigate their own beliefs, and the effectiveness of these, during the study.

If you choose to let the teachers participate in this study, it would involve someone in your administrative staff passing on a letter (attached) to the teachers, which gives some details of the research, plus a web-site address for them to navigate to, to complete the survey. At the end of the survey, teachers are asked to email the researcher if they are willing to partake in an interview.

I wish to stress that participation in this research is voluntary, and that the teachers are free to withdraw at any time. The responses to the questionnaire cannot be traced back to individual respondents. Regarding the interviews, the privacy of all participants, the school and the principal will be respected, and no person or school will be identifiable in the research report. All information will be treated in the strictest confidence, and all participants will be presented with information statements asking their informed consent prior to the study.

The number of participants will significantly influence how representative the results of this study are. Thus, I hope you are able to help me make this study possible, by taking the time to read through the attached letter, and consider letting the teachers at your school participate. If you have any queries or require further details regarding the study please do not hesitate to contact me. I will be happy to answer any questions you might have!

You may also contact my supervisor, Professor Karl Øyvind Jordell;  
Phone: +47 22 85 53 82  
Email: [k.o.jordell@ped.uio.no](mailto:k.o.jordell@ped.uio.no)

Thank you for your consideration. I look forward to hearing from you!

Regards,  
Karin Sørli

Phone: +47 47 39 29 19  
Email: [sorlie2001@yahoo.no](mailto:sorlie2001@yahoo.no)

## 8.4. Letter to principals – Norway

Kjære rektor,

Jeg er en masterstudent ved Universitetet i Oslo, og har en forespørsel angående et forskningsprosjekt jeg jobber med, som er del av min master oppgave.

Forskningsprosjektet handler om læreres oppfatninger, og ser på hva lærere tenker om intelligens. Jeg ønsker å se på hvilken rolle kulturell bakgrunn spiller på disse oppfatningene, og gjør dermed den samme undersøkelsen blant lærere ved barneskoler i Norge og Australia.

Undersøkelsen består av et online spørreskjema, der lærere ved å logge seg inn på en nettside kan svare på spørsmålene når det måtte passe dem. Skjemaet er enkelt og tar ikke lang tid, ca 15 minutter, å fylle ut.

Etter å ha vært i kontakt med (...) kommune, fikk jeg beskjed om at deltakelse i slike prosjekt var opp til den enkelte skole. Jeg ber derfor om at du gir tillatelse til at jeg kontakter lærerne ved (...) skole, og inviterer dem til å være med på undersøkelsen. Jeg har utformet et brev til lærerne (vedlagt) som jeg i så tilfelle håper du kan distribuere blant lærerne; deretter er det opp til dem. Grunnen til at jeg ber om assistanse til å sende ut brevet er at jeg dermed aldri behøver kontaktinformasjon til noen av lærerne, og slik sikrer full anonymitet. Jeg vil i tillegg gjerne ha muligheten til å sende lærerne en påminnelse om prosjektet etter ca to uker, også gjennom deg/ administrasjonen, da det er lett at slike ting kan gå i "glemmeboken".

Prosjektet begrunnes ut fra tanker om at læreres oppfatninger har betydning for elevers motivasjon og læring. Flere forskningsprosjekt har pekt på påvirkningskraften læreres oppfatninger kan ha på elevers mestring. Videre forskning på dette området kan være viktig for å utvikle lærerutdanning i Norge og utlandet best mulig.

Antallet lærere som blir med på prosjektet vil spille en vesentlig rolle på hvor representative resultatene blir. Jeg setter dermed stor pris på om du vil lese igjennom det vedlagte brevet til lærerne, og så vurdere å la lærerne ved "din" skole bli med på prosjektet.

Dersom du skulle ha noen videre spørsmål, vennligst kontakt

Karin Sørлие

Tlf: +47 47 39 29 19

Email: [sorlie2001@yahoo.no](mailto:sorlie2001@yahoo.no)

eller

Professor Karl Øyvind Jordell (veileder)

Tlf: +47 22 85 53 82

Email: [k.o.jordell@ped.uio.no](mailto:k.o.jordell@ped.uio.no)

Med vennlig hilsen,

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Karin Sørлие

PS: Jeg sender deg denne forespørselen både på mail og i brev-form, da jeg ikke vet hvordan du helst jobber.

### **8.5.      *Participant information – Australia***

Dear teacher,

You are invited to partake in a research study being conducted by Karin Sørлие. It is a part of a master's degree at the University of Oslo, Norway, and she is supervised by Professor Karl Øyvind Jordell.

The name of the research project is "Teachers' beliefs". It is asserted that teachers' beliefs influence teachers' behaviors. We are trying to find out if there are differences between the beliefs primary school teachers in Norway and Australia hold. The information from the study will be used to investigate any potential differences, and results will be reported in a master's thesis.

Participation is of course voluntary, and involves completing an on-line survey. The survey is simple to fill out, and should take only about 15 mins to complete. You may choose to withdraw from the study at any time, by simply closing the browser window. Any information provided will then be deleted. I do hope you will take the time to answer, though, as the number of participants will significantly influence how representative the results of the study are. I would thus really appreciate it if you were able to partake in the study!

No-one will be able to identify you or your school from the results of the study. Only the researchers will have access to the information you provide, and no-one (not even the researcher) will be able to identify you through the website. The information provided will be stored for 5 years in a secure place where only the principal researcher will have access.

If you choose to partake in the study, please navigate to the following website at your leisure:

<http://FreeOnlineSurveys.com/rendersurvey.asp?sid=6378eli3lstyls8639807>

(Ctrl+click to use link in Word)

The website will be running until December 20th 2009.

As a follow-up to the online-survey, I also wish to conduct a few interviews. These will last approximately one hour. They will concern the same issues as in the online survey, with the hope to gain a better understanding of the relationship between teachers' backgrounds and teachers' beliefs. You will be invited to participate in an interview at the end of the online survey.

If you have any questions regarding any part of this research project, please contact:

Karin Sørлие (researcher)

Phone: +47 47 39 29 19

Email: [sorlie2001@yahoo.no](mailto:sorlie2001@yahoo.no)

or

Professor Karl Øyvind Jordell (supervisor)

Phone: +47 22 85 53 82

Email: [k.o.jordell@ped.uio.no](mailto:k.o.jordell@ped.uio.no)

Regards,

Karin Sørлие

## 8.6. *Participant information – Norway*

Kjære lærer,

Jeg inviterer deg til å ta del i et online forskningsprosjekt gjennomført av Karin Sørлие. Det er en del av en masteroppgave hun skriver ved Pedagogisk Forsknings Institutt ved Universitetet i Oslo, med prof. Karl Øyvind Jordell som veileder.

Forskningsprosjektet heter "Læreres oppfatninger". Med bakgrunn i en forståelse av at læreres oppfatninger påvirker deres valg og handlemåte i klasserommet, ønsker vi å se på om det er forskjell mellom oppfatningene til barneskolelærere i Norge og Australia. Vi ønsker å se på bakgrunnen for eventuelle forskjeller mellom lærere. Resultatene vil bli publisert i en masteroppgave.

Deltagelse er fullstendig frivillig, og innebærer å fylle ut et spørreskjema online. Skjemaet er enkelt og tar ikke lang tid, ca 15 minutter, å fylle ut. Du kan når som helst trekke deg fra studiet ved å lukke søkevinduet. All informasjon du måtte ha gitt fra deg så langt, vil da bli slettet. Jeg håper imidlertid at du vil ta deg tid til å svare, da det vil ha vesentlig betydning for hvor representative resultatene blir. Jeg setter dermed stor pris på om du har mulighet til å bli med på undersøkelsen!

Ingen vil kunne identifisere deg gjennom undersøkelsen. Kun studenten med veileder vil ha tilgang til informasjonen du gir, og spørreskjemaet er utformet slik at ingen kan identifisere deg eller datamaskinen du bruker.

Dersom du velger å ta del i undersøkelsen, kan du finne spørreskjemaet på den følgende web-adressen:

<http://FreeOnlineSurveys.com/rendersurvey.asp?sid=zrys4zkayrjkmmx659690>

(Ctrl + klikk for å bruke som link fra word)

Det er fint om du har mulighet til å fullføre skjemaet innen fredag 13 november 2009.

Dersom du ønsker utdypende informasjon om dette prosjektet, vennligst kontakt:

Karin Sørлие

Tlf: 47 39 29 19

Email: [sorlie2001@yahoo.no](mailto:sorlie2001@yahoo.no)

eller;

Professor Karl Øyvind Jordell (veileder)

Tlf: 22 85 53 82

Email: [k.o.jordell@ped.uio.no](mailto:k.o.jordell@ped.uio.no)

På forhånd takk!

Med vennlig hilsen,

Karin Sørлие ☺

## 8.7. Online survey – Australia

Research study: Teachers' beliefs



This online survey is part of a Master's thesis investigating the views of primary school teachers in Norway and Australia. I am interested in whether cultural differences between the countries influence teachers' beliefs. Participation is voluntary, and by filling in this survey you automatically agree to participate in the research study.

This website is constructed in a way that I cannot identify any respondents, and neither schools nor individuals will be identified in the research report. All information will be kept completely confidential, and used for the purpose of research only.

You are, of course, free to withdraw at any point, should you not wish to complete the survey. Any information you have filled out thus far will then be deleted.

If you have any questions or concerns regarding this project, please contact

Karin Sørli

Phone: +47 47 39 29 19

Email: sorlie2001@yahoo.no

or

Professor Karl Øyvind Jordell (supervisor)

Phone: +47 22 85 53 82

Email: k.o.jordell@ped.uio.no

If you have any complaints regarding this project, please contact

Yngvild Dahl (masters coordinator)

Phone: +47 22 84 41 38

Email: yngvild.dahl@ped.uio.no

There are two sections to this survey; first, you will be asked to fill out some general background information, second, the main survey will ask you some questions or provide some statements you will be asked to reply to. There is a total number of 17 questions in this survey, and it should take about 15 mins to complete.

Thank you for taking the time to participate in this survey!

1) Participant statement:

I have read and understood the participant information letter, and understand that participation in this research study is voluntary. Any questions I have about the project have been answered to my satisfaction. I understand that the information provided is strictly confidential, and that my identity will not be revealed. I consent to the information provided being used in a masters' thesis, and in any further publications that might result from the study.

Yes



### PART 1: Background information

The following section will collect some general background information about you and the school you work at. It will be helpful to provide grounds for comparing the results with teachers working at other schools. The information will be kept completely confidential, of course, and no information will be used to try and identify you, nor be published so that you or your school are in any way identifiable.

#### 2) Age

Under 25	
25-35	
35-45	
45-55	
55-65	
Over 65	

#### 3) Gender

male	
female	

#### 4) What is your place of birth?

Australia	
Other	

#### 5) Did you grow up in Australia?

Yes	
No	

#### 6) If you did not grow up in Australia, for how many years have you lived in the country?

less than one year	
between one and five years	
between five and 10 years	
between 10 and 20 years	
more than 20 years	
N/A	

7) What educational background do you have?	
Bachelor of Education	
Master of Education	
Diploma of Education	
Certificate of Education	
Certificate of Education with upgrade to Bachelor equivalent	
TAFE / UNI combination	
Other (Please Specify):	

8) For how many years have you worked as a teacher?	
less than 1 year	
between 1 and 3 years	
between 3 and 5 years	
between 5 and 10 years	
between 10 and 20 years	
more than 20 years	

9) For how many years have you worked at your current school?	
less than 1 year	
between 1 and 3 years	
between 3 and 5 years	
between 5 and 10 years	
between 10 and 20 years	
more than 20 years	

10) How large is the school you currently work at?	
less than 100 students	
between 100 and 200 students	
between 200 and 300 students	
between 300 and 400 students	
more than 400 students	

11) What grade level do you primarily teach?	
1st grade	
2nd grade	
3rd grade	
4th grade	
5th grade	
6th grade	
7th grade	
Other (Please Specify):	

12) Is there one or two subjects you teach more than other subjects? Please cross off for a maximum of 2 subjects.	
English	
Mathematics	
Human society and its environment	
Science and technology	
Personal development, health and physical education	
Creative arts	
Languages (other than English)	
Other (Please Specify):	

13) According to your knowledge, and/or test scores you are aware of, how does the school you work at compare at the state level, in terms of student performance?	
below average	
average	
above average	
don't know	

14) Similarly, do you perceive the students you primarily teach to be below average, average or above average, compared to other students at your school?	
don't know	

below average	
average	
above average	

15) Here are some statements regarding cultural belonging. When living in a society, members may feel to a lesser or larger degree as if they belong, or share the same values and views as others in the society. We would like to know to which degree you feel affinity with the cultural group "Australian". There are no right or wrong answers. Indicate on the scale to which degree each of the statements are true to you, where 5 is "completely true to me" and 1 is "not at all true to me".

	1 not at all true to me	2 not very true to me	3 somewhat true to me	4 quite true to me	5 completely true to me
I consider myself an average and typical Australia citizen					
I feel strong affinity with a cultural group other than "Australian" •					
Although I live in Australia I do not feel very "Australian" •					
I belong equally to several cultural groups, "Australian" • being one of them					

## PART 2: Belief statements

16) Some researchers claim that many human characteristics are stable, that is, that they can hardly be changed or affected. Other researchers think that to a large extent these characteristics can be further developed, that is, that they can easily be changed or affected. There are no right or wrong answers, we are interested in your ideas.

Listed below are a number of human characteristics, which many people think are central to students' achievement. Please indicate by check marks to what extent you think that these characteristics can be further developed, where 1 is "cannot be further developed" and 6 is "can be further developed to a very large extent". For instance, check the box under the number 5 if you think "vocabulary" can be further developed "to a large extent".

- 1 = cannot be further developed
- 2 = can be further developed to a very little extent
- 3 = can be further developed to a little extent
- 4 = can be further developed to some extent
- 5 = can be further developed to a large extent
- 6 = can be further developed to a very large extent.

		2 can be further developed to a very little extent	3 can be further developed to a little extent	4 can be further developed to some extent	5 can be further developed to a large extent	6 can be further developed to a very large extent
Vocabulary						
Understanding of the essence of a problem						
Attention						
Thinking speed						
Application of knowledge to solve problems at hand						
Reading comprehension						
Logical reasoning						
Approaching problems thoughtfully						
Identification of connections among ideas						
Intellectual curiosity						
Assessing the relevance of information to a problem at hand						
Learning speed						
Reading pleasure						
Intelligence						

17) The following items have been designed to investigate ideas about intelligence. Using the scale below, please indicate the extent to which you agree or disagree with each of the statements by selecting the number that corresponds to your opinion in the box next to each statement.

Scale: 1=strongly agree, 2=agree, 3=mostly agree, 4=mostly disagree, 5=disagree, 6=strongly disagree

	1 strongly agree	2 agree	3 mostly agree	4 mostly disagree	5 disagree	6 strongly disagree
People have a certain amount of intelligence, and they can't really do much to change it.						
Someone's intelligence is something about them that they can't change very much.						
No matter who someone is, they can significantly change their intelligence level.						
To be honest, people can't really change how intelligent they are.						
People can always substantially change how intelligent they are.						
People can learn new things, but they can't really change their basic intelligence.						
No matter how much intelligence someone has, they can always change it quite a bit.						
Anyone can change even his/her basic intelligence level considerably.						

## 8.8. Online survey – Norway

Forskningsprosjekt: Læreres oppfatninger



Dette spørreskjemaet er en del av en masteroppgave som ser på barneskolelærere i Norge og Australia. Jeg er interessert i om kulturelle forskjeller mellom landene påvirker hvilke oppfatninger lærere har.

Det er fullstendig frivillig om du vil være med på denne undersøkelsen, og du kan selvfølgelig velge å trekke deg når som helst. Om du velger å ikke fullføre skjemaet, vil all informasjon du har gitt så langt, bli slettet. Jeg håper imidlertid at du vil ta deg tid (ca. 15 min.) til å svare, da det vil ha vesentlig betydning for hvor representative resultatene blir.

Spørreskjemaet er konstruert slik at jeg ikke kan identifisere hvem som svarer, og ingen skoler vil bli identifisert i forskningsrapporten. All informasjon vil bli betraktet som konfidensiell, og kun bli benyttet i forsknings-øyemed.

Dersom du har videre spørsmål, vennligst kontakt

Karin Sørli

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eller

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Dersom du har bekymringsmeldinger eller klager i forbindelse med prosjektet, vennligst kontakt

Yngvild Dahl (master koordinator)

Tlf: +47 22 84 41 38

Email: yngvild.dahl@ped.uio.no

Spørreskjemaet er todelt. I den første delen vil du bli bedt om å oppgi en del bakgrunnsinformasjon. I den andre delen vil du bli bedt om å forholde deg til en rekke uttalelser og utsagn. Det er totalt 17 spørsmål på skjemaet, og det tar neppe mer enn 15 min å fullføre.

Takk for at du tar deg tid til å delta i denne undersøkelsen!

1) Erklæring:

Jeg har lest og forstått brevet med informasjon til deltagerne, og er innforstått med at deltagelse i dette prosjektet er frivillig. Jeg har fått tilfredsstillende svar på alle spørsmål jeg har hatt i forhold til prosjektet. Jeg forstår at all informasjon jeg gir fra meg blir betraktet som strengt konfidensiell, og at jeg ikke vil bli identifisert gjennom prosjektet. Jeg gir tillatelse til at mine svar blir brukt som del av en masteroppgave, samt i eventuelle videre publikasjoner som måtte følge fra prosjektet.

Ja

<b>DEL 1: Bakgrunnsinformasjon</b>  Den følgende delen ber om diverse bakgrunnsinformasjon om deg og skolen du jobber på. Dette vil hjelpe oss til å sammenlikne resultatene med lærere fra andre områder. Informasjonen vil selvfølgelig bli behandlet konfidensielt, og ikke brukt til å identifisere individer og/eller skoler på noe vis.	
<b>2) Alder</b>	
Under 25	
25-35	
36-45	
46-55	
56-65	
Over 65	
<b>3) Kjønn</b>	
Mann	
Kvinne	
<b>4) Hvor vokste du opp?</b>	
Norge	
Skandinavia, men ikke Norge	
Annet land (spesifiser):	
<b>5) Dersom du ikke vokste opp i Norge, hvor mange år har du bodd her?</b>	
Under 1 år	
1-4 år	
5-9 år	
10-20 år	
Over 20 år	



6) Hvilken type utdanning har du?	
Lærerhøyskole (2, 3 eller 4-årig), eventuelt med tilleggsutdanning	
Lærerutdanning basert på fagstudier (for eksempel cand. mag., cand philol., cand real., bachelor eller master),	
Faglærer (for eksempel i musikk eller forming)	
Jeg har ikke lærerutdanning	
Annet (spesifiser)	

7) Hvor mange år har du jobbet som lærer?	
Mindre enn 1 år	
1-2 år	
3-5 år	
6-10 år	
11-20 år	
Mer enn 20 år	

8) Hvor mange år har du jobbet ved din nåværende skole?	
Mindre enn 1 år	
1-2 år	
3-5 år	
6-10 år	
11-20 år	
Mer enn 20 år	

9) Hvor stor er skolen du jobber ved?	
Færre enn 100 elever	
100-200 elever	
201-300 elever	
301-400 elever	
Flere enn 400 elever	

10) På hvilket trinn underviser du hovedsakelig nå?	
Første trinn	

Andre trinn	
Tredje trinn	
Fjerde trinn	
Femte trinn	
Sjette trinn	
Sjuende trinn	
Annet (spesifiser)	

11) Er det fag du underviser mer i enn andre? Sett i så tilfelle kryss, maksimalt for 2 fag.	
Samfunnsfag	
Norsk	
Naturfag	
Mat og helse	
Engelsk	
Kroppsøving	
Matematikk	
Kunst og håndverk	
Religion, livssyn og etikk	
Musikk	
Annet (spesifiser)	

12) I forhold til elevenes faglige nivå, hvordan mener du din skole kan sammenliknes med andre skoler i Akershus?	
Under gjennomsnittet	
Gjennomsnittlig	
Over gjennomsnittet	
Vet ikke	

13) Kjenner du til testresultater som understøtter dette synet? Sett eventuelt flere kryss.	
Ja, prøver på skolenivå	
Ja, prøver på regionalt nivå	

Ja, prøver på nasjonalt nivå	
Ja, prøver på internasjonalt nivå	
Nei	
Annet (spesifiser):	

14) Hvordan presterer elevene du underviser mest, i forhold til andre elever på skolen din?	
Under gjennomsnittet	
Gjennomsnittlig	
Over gjennomsnittet	
Vet ikke	

15) Her følger fire utsagn om kulturell tilhørighet. Som medlem i et samfunn kan man føle i større eller mindre grad at man hører til, eller deler verdier og oppfatninger med andre i samfunnet. Vi vil gjerne vite i hvilken grad du kjenner tilhørighet til den kulturelle gruppen "norsk". Det er ingen riktige eller gale svar. Kryss av på skalaen i hvilken grad utsagnene passer for deg, der 5 er "veldig sant for meg" og 1 er "ikke sant for meg i det hele tatt". Bruk eventuelt kommentarfeltet til høyre.						
	1 Ikke sant for meg i det hele tatt	2 Ikke veldig sant for meg	3 Litt sant for meg	4 Ganske sant for meg	5 Veldig sant for meg	Merknader:
Jeg ser på meg selv som en typisk og gjennomsnittlig norsk borger.						
Jeg kjenner sterk tilhørighet til en annen kulturell gruppe enn "norsk" eller "nordmann". (Spesifiser eventuelt i høyre kolonne)						
Selv om jeg bor i Norge, kjenner jeg meg ikke veldig "norsk".						
Jeg hører til flere kulturelle grupper, inkludert "norsk". (Spesifiser eventuelt i høyre kolonne)						

## DEL 2: Utsagn om oppfatninger

16) Enkelte forskere hevder at en rekke menneskelige egenskaper er stabile, d.v.s at de vanskelig kan endres eller påvirkes. Andre forskere mener at disse egenskapene i stor grad kan videreutvikles, d.v.s at de lett kan endres eller påvirkes.

Under har vi listet opp en rekke ulike menneskelige egenskaper, som mange mener er viktige for elevers mestring. Kryss av for i hvilken grad du tror at disse egenskapene kan videreutvikles. For eksempel sett et kryss i ruta under tallet 5 dersom du mener egenskapen kan videreutvikles i ganske stor grad.

1= Kan ikke videreutvikles

2= Kan videreutvikles i svært liten grad

3= kan videreutvikles i liten grad

4= Kan videreutvikles i noen grad

5= Kan videreutvikles i ganske stor grad

6= Kan videreutvikles i svært stor grad

	1 Kan ikke videreutvikles	2 Kan videreutvikles i svært liten grad	3 Kan videreutvikles i liten grad	4 Kan videreutvikles i noen grad	5 Kan videreutvikles i ganske stor grad	6 Kan videreutvikles i svært stor grad
Ordforråd						
Forståelse av det vesentlige ved et problem						
Oppmerksomhet						
Rask tankegang						
Anvendelse av kunnskaper for å løse aktuelle problemer						
Leseforståelse						
Logisk resonnering						
Reflektert tilnærming til problemer						
Identifisering av sammenhenger mellom ideer						
Intellektuell nysgjerrighet						
Vurdering av om informasjon er av betydning for et aktuelt problem						
Læringstempo						

Leselyst						
Intelligens						

17) Følgende utsagn er laget for å undersøke oppfatninger om intelligens. Det finnes ingen riktige eller gale svar her. Det er oppfatningene dine vi er interessert i. Vennligst gi uttrykk for i hvilken grad du er enig eller uenig i hver av de følgende påstandene ved å sette ett kryss på skalaen som går fra 1-6, der tallene uttrykker følgende oppfatninger:

1= Svært enig, 2= Enig, 3= Stor sett enig, 4= Stort sett uenig, 5= Uenig, 6= Svært uenig

	1 Svært enig	2 Enig	3 Stor sett enig	4 Stort sett uenig	5 Uenig	6 Svært uenig
Folk har en bestemt mengde intelligens, og de kan egentlig ikke gjøre mye for å endre den.						
En persons intelligens er noe ved personen som han/hun ikke kan endre veldig mye.						
Uansett hvem en person er, så kan vedkommende endre intelligensnivået sitt i betydelig grad.						
For å være ærlig, så kan man egentlig ikke endre hvor intelligent man er.						
Hvor intelligent man er, er noe man alltid kan endre betraktelig.						
Folk kan lære nye ting, men de kan egentlig ikke endre sin grunnleggende intelligens.						
Uansett hvor mye intelligens en person har, kan han/hun alltid endre den en hel del.						
Selv sitt grunnleggende intelligensnivå kan man endre betraktelig.						

## **8.9. Interview guide – Australia**

### **Interview guide "Teachers' beliefs"**

(Potential follow up questions/explanations in brackets)

#### **General info; "warm up" questions.**

- 1) How old are you?
- 2) For how many years have you worked as a teacher?
- 3) For how many years have you worked at your present school?
- 4) Which grade level do you teach at, and which subjects do you primarily teach?
- 5) What kind of teacher education do you have?

#### **Cultural background items**

*"First, I'd like to ask you a few questions relating to your sense of cultural belonging, ok?..."*

- 6) What is your relationship to Australian culture?  
(Do you feel a sense of belonging with Australia general culture? If yes; in which way. If no; in which way not? Do you feel affinity with another culture, if so, which?)
- 7) Within certain cultures we find certain values and norms. How would you describe the general attitude towards intelligence and giftedness in Australia?  
(Prompt; the in-born ability vs effort/ nature vs nurture debate.)
- 8) To which extent do you feel like you share such attitudes with the Australian culture at large?  
(Can you give examples?)

#### **Belief items**

*"I am interested in your own beliefs about intelligence, and would like to talk about that now."*

- 9) What does the concept "intelligence" mean to you?
- 10) Can we change our intelligence, or is it given from birth?  
(If we can change it; how? If it is fixed; why can we not change it?)
- 11) What about our ability to learn, can we change or improve on that?  
(If yes; how? If no; why not?)
- 12) Throughout your experience as a teacher, have you come across students that seem to perform poorly in all academic areas?  
(If so; what are your thoughts around the reasons for this, ie is it related to background/resources/motivation/ability? What strategies have you employed?)
- 13) In your experience, what does it take to help a student lift his/her (mathematics/ reading/other; subject related to teachers' main subjects!) performance?  
(Can ALL students improve their performance in this subject? Achieve top grades in this subject? If so; how? If not; why not?)

- 14) Some people are good at drawing; others at remembering numbers. Do you think all people can learn to draw well?  
(Could we all become artists? Maths professors? Learn to speak 5 languages fluently?)
- 15) When students perform badly (or below what is expected of them) what feedback do you feel is appropriate to give?  
(Can you give an example?)
- 16) Have you experienced a typically high performing student do really badly at a task?  
(If so; what are your thoughts around the reasons for this? What type of feedback would be appropriate in such a situation? Can you give an example?)
- 17) Students in high socio-economic status areas have a tendency to outperform students from low socio-economic status areas. What do you make of this; how can it be explained?
- 18) Some students seem to perform well in many academic subjects without much effort, while others do lots of work but struggle to achieve. What are your thoughts around the reasons for this?
- 19) What does the concept "giftedness" mean to you?
- 20) What does the concept "multiple intelligences" mean to you?
- 21) Would you characterize any of your current students as gifted?  
(If yes; in which way? How come they were gifted; was it due to hard work or were they just born that way? If no; Would you characterize any of your past students as gifted? Do you know of anyone at all you would characterize as gifted? If so; In which way? How come they were gifted; was it due to hard work or were they just born that way?)
- 22) How do you (/should you) as a teacher relate to gifted children?  
(Should you treat children that are gifted in a different manner than children of high ability who have simply worked hard, but are not gifted?)

### **Summing up, widening the perspective**

*"It seems to me your thoughts on intelligence can be summed up in this way; (...).*

[Possibly explore tensions/discrepancies between explicit and implicit beliefs here, if appropriate]

- 23) Would you feel that is accurate?  
(Would you like to expand on that? If discrepancy between explicit and implicit beliefs, or between beliefs and practices (examples); why? Is it not socially acceptable to believe certain things? Are some beliefs more simple and/ or comfortable than others? Other reasons, reflections around this?)
- 24) Do you reckon this view is fairly average/common for teachers at your school?

(Is it common for teachers in your area? State? Australia at large? If so; how does it relate/in which way is it similar? If not; how is it different?)

- 25) Do you reckon your parents share(d) your views on intelligence?  
(Thinking back, how would your parents typically react if you received bad results at school? What about if you received good ones, would they call you smart? Do you remember other experiences relating to this issue?)
- 26) What about your own teachers (during the school years), can you remember one that was good at encouraging you?  
(How did this teacher tend to respond to good/bad student performances? Similarly, do you remember a "bad" teacher, and how he/she responded to high/low performance? What thoughts do you have around this, in terms of your own role as a teacher? Have you adopted any strategies or methods your "old" teachers used?)

*"Moving on to your educational background; ...*

- 27) Are there any of your teachers (from your teachers education program) you remember in particular?  
(If so; why? In which way was this teacher good/bad? What attitudes toward intelligence would you say this teacher exemplified? Did he/she have an impact on your own beliefs?)
- 28) Do you remember discussing the concept intelligence and children learning throughout your teachers education program?  
(If yes; examples?)
- 29) Do you recall reflecting around your own educational beliefs throughout your teachers' education program?  
(If yes; examples?)
- 30) Have you previously considered/reflected around this issue in your spare time?  
(If yes; with whom? Friends, family, colleagues, others?)

### **Personal reflections**

*"As you might have gathered, as well as learning about your beliefs about intelligence, I am interested in learning whether there are any specific experiences that have assisted in shaping your current view of intelligence and learning.*

- 31) If I give you these hints; what are your thoughts on which categories have influenced your beliefs the most?  
(Hints on piece of paper)

- family/friends
- teachers/mentors
- experiences throughout your schoolyears
- experiences from (higher) education programs
- work experiences (teaching/other jobs)



- culture (ie socially accepted views, general influences)
- other experiences?

32) Open; is there anything you feel like discussing, relating to the issues we have covered? Do you have any questions, or is there something you would like to clear up?

*"I'd like to thank you for taking the time for this, it has been very valuable to me!"*

## **8.10. Interview guide – Norway**

### **Intervju guide ”læreres oppfatninger”**

(Potensielle oppfølgingsspørsmål i parentes)

#### **Oppvarmingsspørsmål**

- 1) Hvor gammel er du?
- 2) Hvor lenge har du jobbet som lærer?
- 3) Hvor lenge har du jobbet ved din nåværende skole?
- 4) Hvilket trinn underviser du på primært? I hvilke fag?
- 5) Hva slags lærerutdanning har du?

#### **Kulturell tilhørighet**

*”Jeg vil gjerne starte med å snakke litt om din kulturelle tilhørighet, ok?”*

- 6) Hva er forholdet ditt til Norsk kultur?  
(Føler du tilhørighet til en ”generell” norsk kultur? Dersom ja- på hvilken måte?  
Dersom nei- hvorfor ikke? Føler du tilhørighet til en annen kultur? Hvilken?)
- 7) Innenfor visse kulturer finner man visse verdier og normer. Hvordan vil du beskrive den generelle holdningen til intelligens og begavethet i det norske samfunn?  
(feks natur vs miljø spørsmålet, hvor viktig er det å være flink? Hva med eliteskoler, elite tenkning etc?)
- 8) I hvilken grad vil du si at du deler disse holdningene med ”resten” av det norske samfunnet generelt?  
(Har du noen eksempler?)

#### **Oppfatninger**

*”Jeg er interessert i oppfatninger om intelligens, som du sikkert har skjønt.”*

- 9) Hva betyr konseptet ”intelligens” for deg?
- 10) Kan vi mennesker endre vår intelligens, eller er den bestemt ved fødselen, mao pga gener?  
(Dersom vi kan endre den; hvordan? Dersom den er bestemt; hvorfor [mener du] vi ikke kan endre den?)
- 11) Hva med vår evne til å lære nye ting- kan vi endre eller forbedre den?  
(Dersom ja; hvordan? Dersom nei; hvorfor ikke?)
- 12) I løpet av din tid som lærer, har du møtt elever som gjør det dårlig i alle fag? Kan du gi et eksempel?  
(Dersom ja; eksempel! hvilke tanker har du gjort deg rundt dette? For eksempel grunnen til det- henger det sammen med bakgrunn/ressurser/motivasjon eller evner? Hvilke strategier har du tatt i bruk i slike situasjoner?)

- 13) Du var ( )-lærer, ikke sant? I henhold til din erfaring, hva skal til for at en student kan heve sin (matte, norsk, annet fag relatert til lærerens eget fag!) karakter/prestasjon i faget?  
(Hva kan du som lærer gjøre? Kan ALLE elever bli bedre i dette faget? Oppnå toppkarakter i dette faget? Dersom ja; hvordan? Dersom nei; hvorfor ikke?)
- 14) Noen mennesker er kunstneriske, andre er flinke med tall, for eksempel. Tror du alle kan lære å tegne bra?  
(Kunne vi alle blitt kunstnere? Kan enhver person bli professor i matte? Lære seg 5 språk flytende?)
- 15) Når en elev presterer dårlig- eller dårligere enn det som er ventet av dem- hva slags feedback synes du er riktig å gi?  
(Har du et eksempel? Kan du huske en spesifikk situasjon- beskrive denne?)
- 16) Har du opplevd at en typisk ”flink” elev har prestert veldig dårlig på en oppgave eller en prøve?  
(Har du et eksempel? Hva tenker du var grunnen til den dårlige prestasjonen? Hva slags tilbakemeldinger er passende i en slik situasjon? Har du et eksempel/kan du huske hva du gjorde/sa?)
- 17) Studenter fra områder med høy sosio-økonomisk status har en tendens til å prestere bedre, i alle fall på papiret, enn studenter fra områder med lavere sosio-økonomisk status. Hva er dine tanker rundt dette- hvordan kan dette forklares?  
(Hva er grunnen?)
- 18) Noen elever synes å gjøre det bra i mange fag uten særlig innsats, mens andre legger mye innsats inn uten å oppnå særlig gode resultater. Hvilke tanker gjør du deg rundt grunnen til dette?
- 19) Hva betyr konseptet å være ”begavet” for deg?
- 20) Hva betyr konseptet (mangfoldig/flere) ”intelligens” for deg? (”multiple intelligences”)?
- 21) Vil du karakterisere noen av dine nåværende elever som begavet?  
(Dersom ja; på hvilken måte? Hvorfor er han/hun begavet, tror du- var han/hun født slik, har han/hun hatt en spesiell oppvekst? Har han/hun jobbet hardt? Dersom nei; ville du karakterisert noen av dine tidligere elever som begavet? Kjenner du i til noen i det hele tatt du vil karakterisere som begavet? Dersom ja; på hvilken måte? Etc.
- 22) Hvordan forholder du som lærer deg til begavete barn?  
(Bør du forholde deg annerledes til begavete barn, og til barn som har blitt flinke gjennom hardt arbeid, men ikke er begavete?)

### Oppsummering

*”Det virker på meg som om dine tanker rundt intelligens kan summeres på denne måten; (...).*  
[Potensielt utforske ubalanse mellom eksplisitte og implisitte oppfatninger her, dersom relevant]

- 23) Føler du dette er en nøyaktig/korrekt beskrivelse/oppsummering?  
(Ønsker du å kommentere/utdype dette? Dersom forskjell på eksplisitte og implisitte oppfatninger; hvorfor? Er det noen oppfatninger som er mer sosialt akseptable enn andre? Er det noen som er inkludere/mer behagelige enn andre? Andre tanker rundt dette?)
- 24) Tror du denne oppfatningen du uttrykte om intelligens er relativt gjennomsnittlig for lærere ved din skole?  
(Tror du den er vanlig for lærere på Østlandet? I Norge? Hvorfor/hvorfor ikke?)
- 25) Hva med foreldrene dine, deler eller delte de ditt syn på intelligens og hva det vil si å være flink? (intelligens er medfødt eller opparbeidet)?  
(Om du tenker tilbake, hvordan reagerte foreldrene dine om du fikk gode/dårlige resultater på skolen? La de mye i det? Kalte de deg smart, var det viktig å være smart? Eller var det innsatsen som gjaldt? Kan du huske andre opplevelser i forbindelse med dette? Andre eksempler/hendelser?)
- 26) Hva med dine egne lærere da du gikk på skolen- er det noen du husker spesielt? Noen som var flinke til å oppmuntre? Dårlige?  
(Kan du huske hvorledes denne læreren forholdt seg til de flinke og ”de dårlige” elevene? Hvordan han hun håndterte dårlige resultater eller gode? Har du gjort deg noen tanker rundt din egen rolle som lærer- var det noen av lærerne dine som hadde gode /dårlige metoder som du tar i bruk /holder deg borte fra? Andre påvirkninger?)

*”Så i forhold til din egen utdanning som lærer;*

- 27) Fra lærerhøgskolen/universitetet; er det noen av dine professorer/metodelærere andre mentorer du husker spesielt godt? Flinke, dårlige?  
(På hvilken måte? Hva slags holdninger til intelligens og de temaene vi har berørt mener du den læreren/professoren utviste? Følte du at du lærte noe nytt, fikk noen nye holdninger?)
- 28) Kan du huske om dere behandlet temaer som intelligens og begavethet direkte i lærerutdanningen?  
(Dersom ja, har du noen eksempler?)
- 29) Kan du huske om dere drev med ”refleksjon” i løpet av lærerutdanningen, mao refleksjon rundt egne oppfatninger?  
(Dersom ja, har du noen eksempler?)
- 30) Er de temaene vi har berørt noe du tidligere har reflektert rundt selv, enten med kollegaer, medstudenter, venner, familie eller andre?

### **Personlige refleksjoner**

*”Så du har sikkert skjønnet at jeg er interessert både i hva slags oppfatninger du har om intelligens, og også hvilke opplevelser og erfaringer du har hatt/gjort deg i løpet av livet ditt, som kan ha påvirket hvordan du tenker rundt dette.”*

31) Dersom jeg gir deg dette papiret med en del potensielle påvirkningsfaktorer, som et slags hint, hva tenker du i henhold til hvilke faktorer som i størst grad kan ha påvirket dine oppfatninger om intelligens?  
(hint på ark)

- venner/ familie
- lærere/ mentorer
- erfaringer fra skoleårene
- erfaringer fra høyere utdanning
- arbeidserfaringer (lærerjobben / andre jobber)
- kultur (Norsk/ annen kultur. feks generelle innflytelser fra samfunnet rundt, sosialt akseptable holdninger, annet?)
- andre erfaringer?

32) Til slutt, er det noe annet du ønsker å ta opp, noe du ønsker å utdype el? Eventuelt har du noen spørsmål til meg, eller noe du ønsker å klare opp i?

*Tusen takk for at du tok deg tid til dette! Jeg setter stor pris på din deltagelse; den har vært veldig verdifull for meg!*